OCTOBER 2012

TECHNICAL REPORT

2012 Water Supply and Infrastructure Master Plan

Santa Clara Valley
Water District

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Santa Clara Valley Water District
2012
Water Supply and Infrastructure Master Plan

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October 2012

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Executive Summary

The purpose of the Water Master Plan is to describe the District's strategy for a reliable supply of water to meet demands in Santa Clara County through 2035 consistent with Board policy and the District's level of service goal to meet at least 100 percent of average annual water demand identified in the District's Urban Water Management Plan during non-drought years and at least 90 percent of average annual water demand in drought years. This Technical Report documents the approach, objectives, data, and analyses used to develop the Water Master Plan strategy.

The Water Master Plan work was founded on a key assumption that existing supplies will continue to be available in the future to meet water demands. The District relies on a number of assets, projects and programs to ensure that its current supplies are available for future use.

The analysis for the2012 Water Master Plan found that the county's water supplies are insufficient to meet future water needs, primarily during droughts. Reserves would be depleted during extended droughts and short-term water use reductions of up to almost 30 percent (or about 119,000 AFY) would be needed to avoid land subsidence. The District has to make investments to fill this need. The District also needs to continue to make investments to maintain, restore, and replace its existing assets, some of which were constructed 75 years ago. Without baseline supplies in place, shortages would occur sooner, more frequently, and be much more severe.

District staff developed a list of almost 60 potential projects to help address the future water supply shortages. Staff evaluated the projects, developed initial water supply strategies, evaluated the initial strategies, and worked iteratively to come to a selection of four preferred strategies. Staff evaluated the preferred strategies and selected one recommended strategy.

The projects and strategies were evaluated using planning objectives and modeling tools. Each project and strategy's costs and benefits were analyzed. In addition, stakeholders provided invaluable input on projects and strategies, and guided the development and selection of the recommended strategy. The recommended strategy is supported by the board and stakeholders.

To provide a reliable supply of water to meet needs through 2035 the District's Ensure Sustainability water supply strategy relies on the following three elements:

1. Secure baseline supplies and infrastructure
2. Optimize the use of existing supplies and infrastructure
3. Increase recycling and water conservation to meet future increases in demands

This strategy ensures sustainability because it meets future increases in demands with conservation and recycling, builds on the existing baseline system, and manages risks to water supply reliability from climate changes and reduced imported water supplies. The strategy is also consistent with District policies and stakeholder interests.

The three elements of the Ensure Sustainability water supply strategy work together. The baseline water supply system will continue to support most of the county's future water needs. Optimizing the use of existing supplies and infrastructure leverages the investments the District has already made in water supply reliability and increases the system's flexibility. Additional recycling and conservation will bridge the gap between existing system capability and future demands, as well as manage risks from climate change and imported water reductions.

The strategy meets the District's long-term water supply reliability level of service goal and develops local water supplies consistent with State policy to reduce reliability on the Delta for meeting future needs. The strategy also provides benefits to groundwater quality, adds system flexibility, increases conservation, and adds some community and environmental benefits.

Though the strategy is the most expensive of all the strategies analyzed, most stakeholders are willing to pay for the reliability it provides. In addition, the indirect potable reuse component of this strategy faces some implementation challenges including significant public acceptance issues and a complex permitting process.

Implementation is a critical piece of the recommended strategy and occurs over the full term of the plan, to 2035. The highest cost item, Indirect Potable Reuse (IPR), is planned for construction in the 2027 – 2031 time period. This provides sufficient time to further study IPR for permitting, continue stakeholder engagement, and monitor advancements in treatment effectiveness and regulations.

A summary of the implementation plan for new projects and programs is below. The costs to implement the plan are similarly phased.

- **2012 – 2016:** Further studies, planning, and public outreach for new projects and programs
- **2017 – 2021:** Project level planning for a new recharge pond and the IPR project, as well as beginning imported water reoperations and the graywater rebate program
- **2022 – 2026:** Design of IPR, and design and construction of new recharge ponds
- **2027 – 2031:** Construction of new IPR facilities
- **2032 and Beyond:** Operations of all new projects and programs

The District will monitor and periodically validate this implementation plan. The strategy will need to adjust to changing conditions such as changes in supply and demand projections, climate, regulations, and baseline systems. To capture such changes, the District will conduct a master plan update every five years, and will adjust the strategy and implementation plan accordingly.

CHAPTER 1. Introduction

This document is the Technical Report for the Water Supply and Infrastructure Master Plan (Water Master Plan). The purpose of this report is to document the approach, objectives, data, and analyses used to develop the Water Master Plan. This Technical Report provides an administrative record of the project for District staff and management.

The outcome of the Water Master Plan is the Santa Clara Valley Water District's (District's) strategy for a reliable supply of water to meet demands in Santa Clara County through 2035. District Board members and other decision makers will use the Water Master Plan strategy as the basis for making decisions on future investments in water supply reliability. A separate document, The Water Supply and Infrastructure Master Plan[1] documents the strategy for the Board and interested Santa Clara County residents and stakeholders.

This introductory chapter of the Technical Report provides the policy basis for the Water Master Plan, the need for and purpose of the Water Master Plan, an overview of the District's water supply system, and a description of how the Technical Report is organized.

1.1. Policy Guidance

The Santa Clara Valley Water District (District) is the wholesale water agency that recharges the county's groundwater basins and provides treated water to water retailers. The District's mission is to provide for a healthy, safe, and enhanced quality of living in Santa Clara County through watershed stewardship and comprehensive management of water resources in a practical, cost-effective, and environmentally-sensitive manner for current and future generations. This is reflected in the Santa Clara Valley Water District (District) Act[2] that states one of the purposes of the District is "to do any and every lawful act necessary to be done that sufficient water may be available for any present or future beneficial use or uses of the lands or inhabitants within the District."

The District Board of Directors adopted policies[3] that provide direction to the CEO on achieving the mission. Board Policy E-2.1 states, "Current and future water supply for municipalities, industries, agriculture, and the environment is reliable." Under this policy, the Board identifies a strategy for achieving the policy that sets forth a level of service goal for future water supply reliability. The level of service goal is that the District will develop water supplies designed to meet at least 100 percent of average annual water demand identified in the District's Urban Water Management Plan during non-drought years and at least 90 percent of average annual water demand in drought years. The Board policies and strategies recognize that a reliable water supply is important to the environmental, economic, and social well-being of the county.

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[1] http://www.valleywater.org/Services/WaterSupplyPlanning.aspx

[2] http://www.valleywater.org/About/DistrictAct.aspx

[3] http://www.valleywater.org/About/BoardPolicies.aspx

1.2. Need for a Water Master Plan

A reliable supply of clean water is necessary for the environmental, economic, and social well-being of Santa Clara County. A safe and reliable water supply extends beyond the significant social requirements of basic health and sanitation. This extension includes economic vitality, environmental needs, agricultural requirements, social benefit, cultural expectations and requirements, and quality of life enhancements. The 2012 Silicon Valley Index[4] states "Water is one of the Region's most precious resources, serving a multitude of needs… Sustainability in the long run requires that households, workplaces, and agricultural operations efficiently use and reuse water." On behalf of the community, the Santa Clara Valley Water District (District) has made significant investments to develop water supplies and infrastructure to meet the county's water needs.

> ***"Water is one of the Region's most precious resources, serving a multitude of needs… Sustainability in the long run requires that households, workplaces, and agricultural operations efficiently use and reuse water."***

The District needs to plan for additional water supplies in order to meet its water supply reliability level of service goal of developing supplies to meet at least 100 percent of average annual water demand during non-drought years and at least 90 percent of average annual water demand in drought years. The District's 2010 Urban Water Management Plan estimates that, without new supplies, average annual water demands would exceed supplies by about 4,000 AFY in 2035. The District would not be able to meet 100 percent of average non-drought year annual demands. In drought years, the 2010 Urban Water Management Plan estimated more severe shortfalls than in normal years and the need for short-term demand reductions of more than 20 percent. The District would not be able to meet 90 percent of demand without risking groundwater overdraft and land subsidence.

New supplies are needed to maintain groundwater levels and avoid additional land subsidence and sea water intrusion. Voters approved the formation of the Santa Clara Valley Water Conservation District, a predecessor to today's water district, in 1929 to develop and manage water supplies to meet the county's needs. Northern Santa Clara County had experienced land subsidence from pumping more groundwater than could be replaced or replenished through rainfall. In response, the District constructed six reservoirs in the 1930s to store winter rains for groundwater recharge and summer irrigation use. Four additional reservoirs were constructed in the 1950s,[5] nearly tripling local storage to about 169,000 AF. Still, local supplies were insufficient to meet the county's growing population and subsidence continued. In 1965, the District began importing water from the State Water Project for groundwater recharge and use at drinking water treatment plants. The District began receiving water from the Federal Central Valley project in 1987. By the end of the 20th century, groundwater levels recovered and land subsidence was halted. The historic relationship between population growth, groundwater levels, subsidence, and water sources is illustrated in Figure 1-1. As population and water use increases, the District will need to develop additional water supplies in order to meet the county's water needs and avoid land subsidence.

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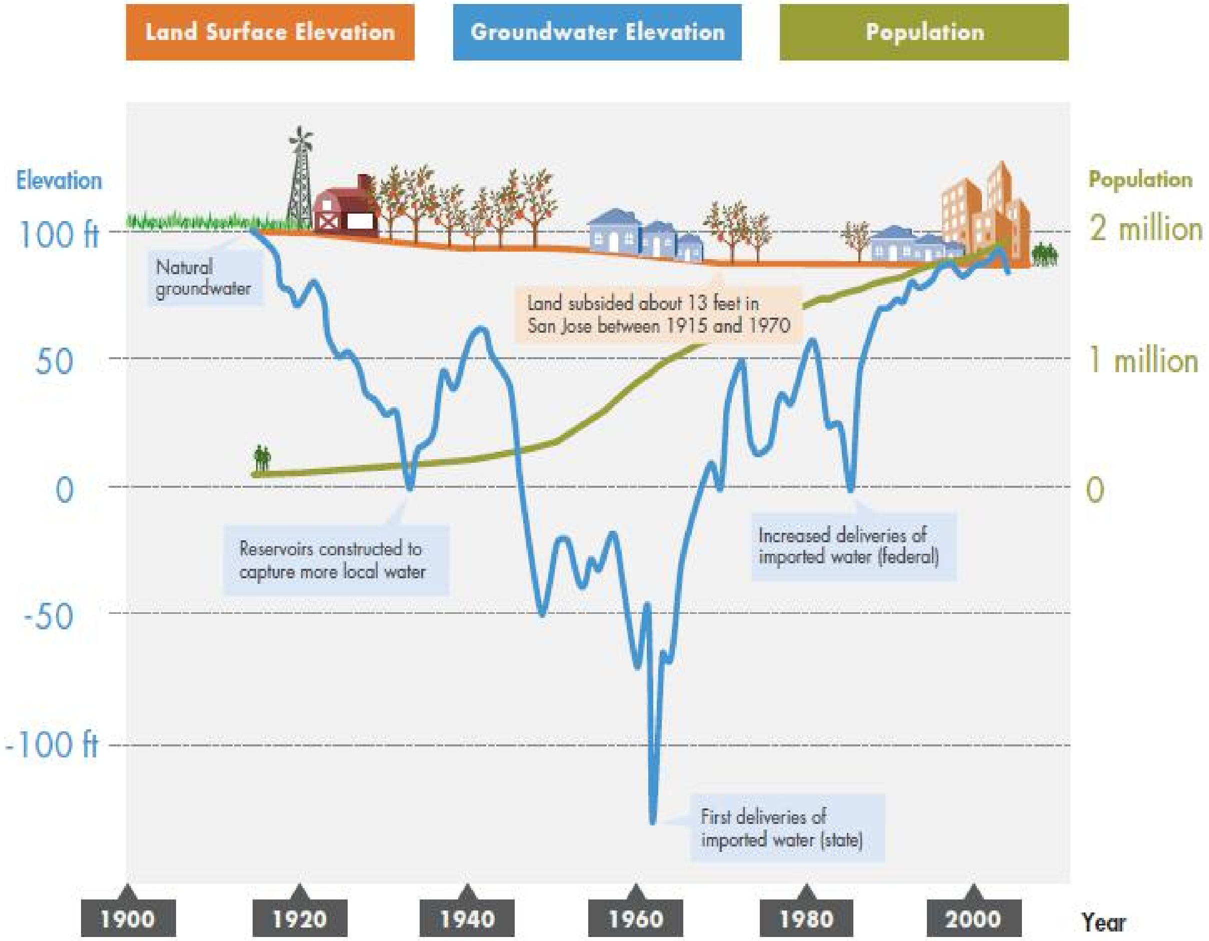
[4] http://www.jointventure.org/images/stories/pdf/2012index.pdf

[5] Two reservoirs were constructed by the Santa Clara Valley Water Conservation District and two reservoirs were constructed by the South Santa Clara Valley Water Conservation District which was annexed into the Santa Clara Valley Water District in 1987.

Figure 1-1. History of Groundwater Elevations and Subsidence in Santa Clara County[6]



1.3. Water Master Plan Purpose

The Water Supply and Infrastructure Master Plan (Water Master Plan) identifies the District strategy to continue investments to meet the county's future water supply needs through at least 2035 consistent with Board policy and the District's level of service goal. District staff initiated the Water Master Plan for the following reasons:

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[6] Elevations shown are relative to sea level. El. 0 is at sea level.

New supplies are needed to meet demands. The District needs to make investments in new water supplies, water conservation programs, and new infrastructure to meet future demands consistent with Board policy and community needs. The District's 2010 Urban Water Management Plan identifies drought year water supply shortfalls beginning around 2015. Without new supplies, the District would need to call for short-term demand reductions of more than 20 percent during an extended drought. Shortages may come sooner or be more severe if curtailments in imported water supply or climate change impacts materialize. The Water Master Plan provides the District's strategy for meeting future demands.

New investments need to be identified. Investments in new supplies and infrastructure need to be identified so they can be planned for and coordinated with investments in the existing water supply system. The District will continue to rely on its existing water supply system throughout the future, and will need to invest billions of dollars over the next fifty years to maintain the existing system. The District needs to balance investments in new supplies and infrastructure with investments in the existing system. The Water Master Plan identifies new investment needs so they can be coordinated with investments in the existing system.

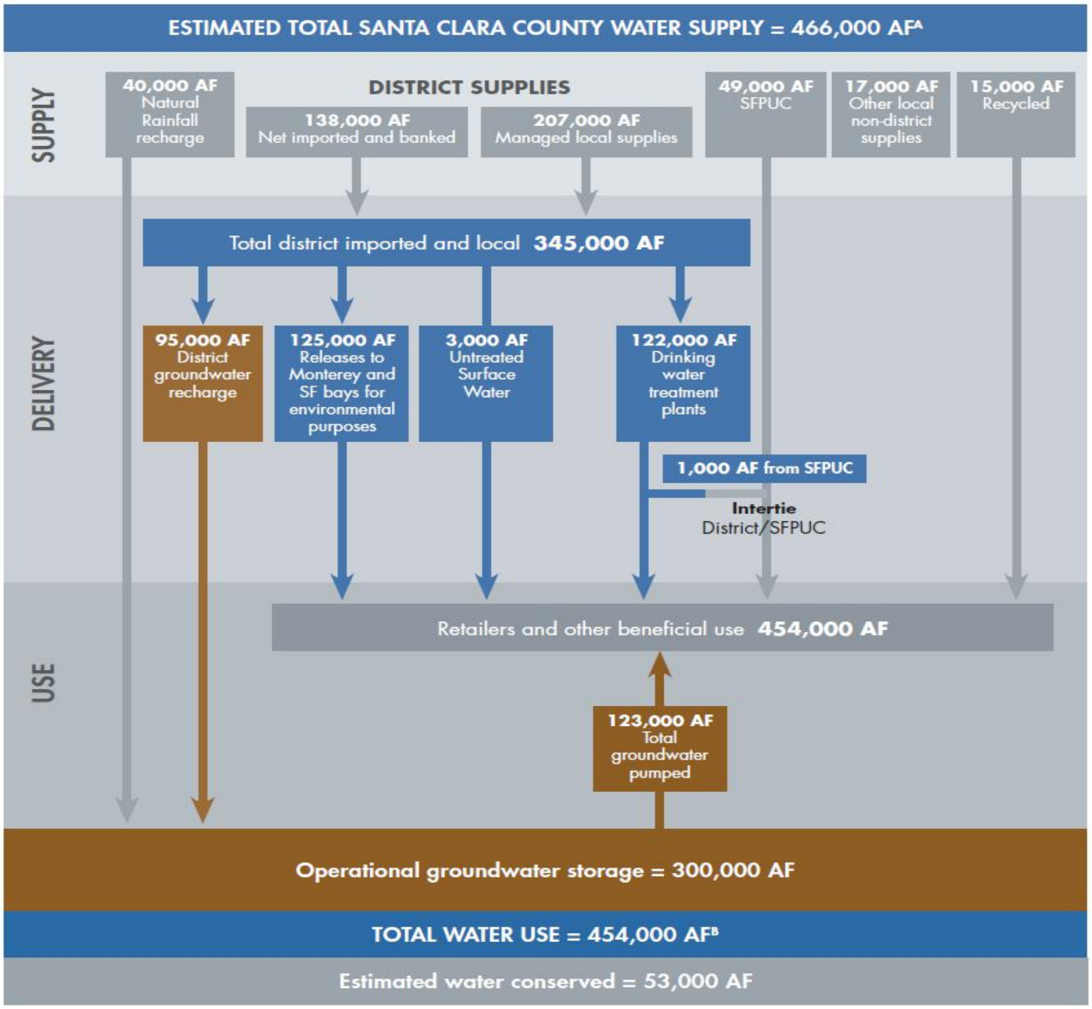
Planning studies need to be coordinated. The District is completing a number of special studies and tracking various water supply issues. The District is currently studying potable reuse feasibility, desalination feasibility, regional surface water storage opportunities, water treatment plant improvements, and dam seismic stability studies. The District is tracking imported water quality and reliability concerns, and local water rights issues. The Water Master Plan provides guidance for program-level planning efforts by defining what, how much, and when new supplies are needed.

1.4. Water Supply System Overview

The District operates a complex system of constructed and natural infrastructure to meet water demands in Santa Clara County. For maximum flexibility, the District uses a variety of water supply sources including local surface water, imported water from the Sacramento-San Joaquin Delta, and recycled water. These supplies are used to replenish the local groundwater subbasins, purified at the district's drinking water treatment plants, sent directly to water users, and released to local creeks to meet environmental needs and regulations.

Water retailers in the northern part of the county also receive water from the San Francisco Public Utilities Commission. In addition, Stanford University and the San Jose Water Company hold surface water rights. Figure 1-2 shows countywide water supply, water delivery, and water use for Calendar Year 2011.

Figure 1-2. Water Supply, Delivery, and Use in 2011[7]


ESTIMATED TOTAL SANTA CLARA COUNTY WATER SUPPLY = 466,000 AF^A
SUPPLY
40,000 AF Natural Rainfall recharge
DISTRICT SUPPLIES
138,000 AF Net imported and banked
207,000 AF Managed local supplies
49,000 AF SFPUC
17,000 AF Other local non-district supplies
15,000 AF Recycled
DELIVERY
Total district imported and local 345,000 AF
95,000 AF District groundwater recharge
125,000 AF Releases to Monterey and SF bays for environmental purposes
3,000 AF Untreated Surface Water
122,000 AF Drinking water treatment plants
1,000 AF from SFPUC
Intertie District/SFPUC
USE
Retailers and other beneficial use 454,000 AF
123,000 AF Total groundwater pumped
Operational groundwater storage = 300,000 AF
TOTAL WATER USE = 454,000 AF^B
Estimated water conserved = 53,000 AF

A Includes net district and non-district surface water supplies and estimated rainfall recharge to groundwater basins.
B Includes municipal, industrial, agricultural and environmental uses.

The District's water supply and distribution system includes the following major facilities:

- 10 surface water reservoirs with a combined capacity of 169,000 acre-feet
- 17 miles of raw surface water canals
- 4 water supply diversions
- 393 acres of groundwater recharge ponds
- 91 miles of controlled in-stream recharge
- 142 miles of raw and treated water pipelines
- 3 pumping stations
- 3 drinking water treatment plants

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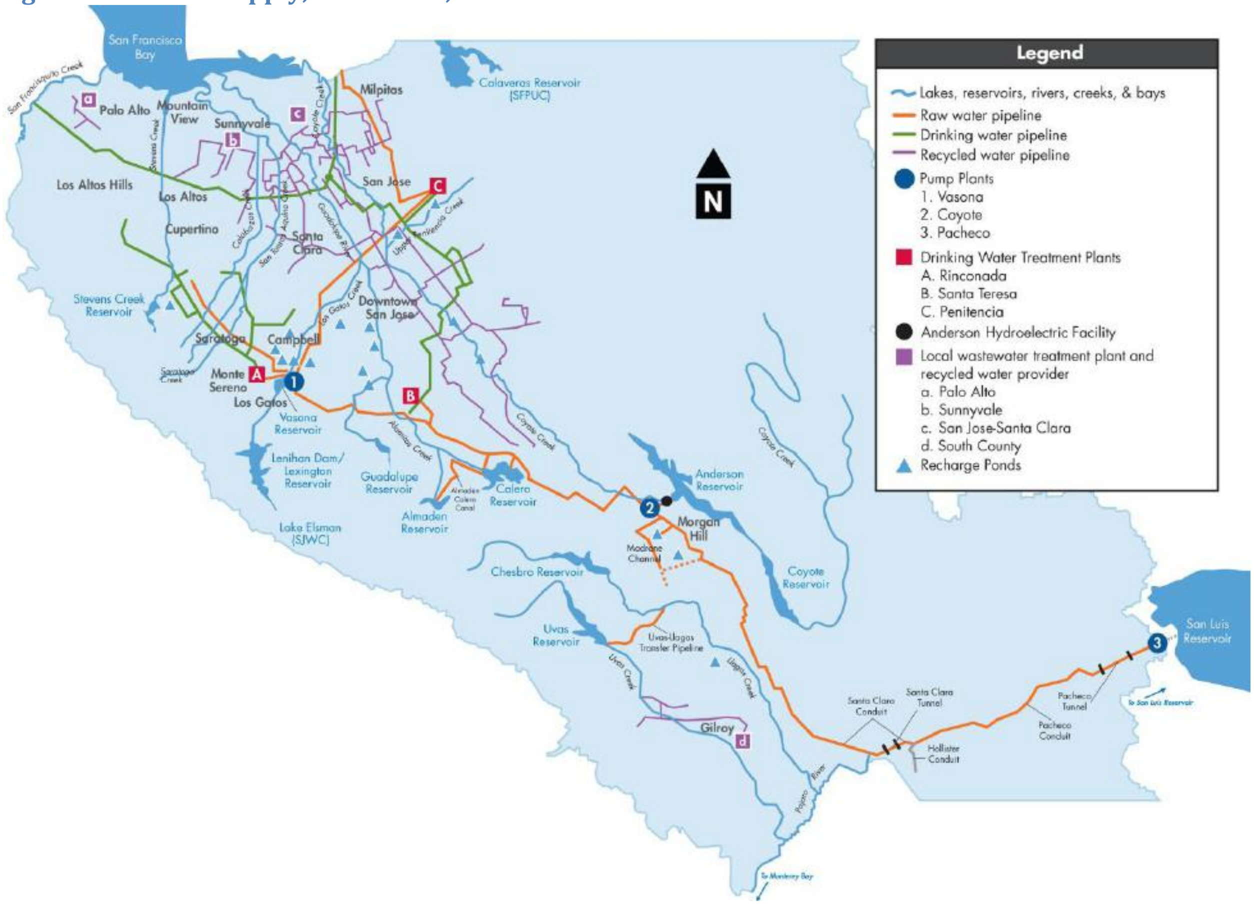
[7] The District's 2010 UWMP demand estimates include municipal, industrial, and agricultural beneficial uses and do not include environmental uses. Municipal, industrial, and agricultural use in 2011 was about 329,000 AF, which is total use of 454,000 AF minus environmental use of 125,000 AF.

Figure 1-3 illustrates the water supply, treatment, and distribution facilities in Santa Clara County. Appendix A has information on the District facilities, their capacity, and their condition.

Figure 1-3. Water Supply, Treatment, and Distribution Facilities



The variety of water supply sources and infrastructure in Santa Clara County enables the District to conjunctively manage its water supplies, utilizing imported and local surface water to supplement groundwater and maintain reliability in dry years. Without the District's conjunctive use programs, groundwater elevations would be considerably lower than they are today, reducing water supply reliability and increasing the risks of continued land subsidence and salt water intrusion.

1.5. Report Organization

The Technical Report is organized into chapters that describe the approach, objectives, data, and analyses used to develop the Water Master Plan. The chapters of the report are:

Chapter 1 Introduction: Provides the policy basis for the Water Master Plan, the need for and purpose of the Water Master Plan, an overview of the District's water supply system, and a description of how the Technical Report is organized.

Chapter 2 Planning Approach: Describes the tasks involved in developing the Water Master Plan, the role of stakeholders in Water Master Plan development, modeling tools, assumptions, and constraints.

Chapter 3 Planning Objectives: Describes the criteria that were used to evaluate water supply projects and programs.

Chapter 4 Water Supply Reliability Outlook: Defines the problems to be solved and risks to be addressed by the Water Master Plan. It documents the estimated future water demands, supplies, shortages, and anticipated risks to water supply reliability.

Chapter 5 Potential Water Supply Projects and Strategies: Provides information on potential water supply projects and programs, how they were combined into initial water supply strategies, and how those strategies were analyzed to identify four preferred water supply strategies.

Chapter 6 Preferred Water Supply Strategies: Describes the four preferred water supply strategies and how they were analyzed to identify the recommended strategy.

Chapter 7 Water Supply Strategy: Describes the District's water supply strategy and its benefits and costs.

Chapter 8 Implementation Approach: Describes how the water supply strategy will be implemented over time.

CHAPTER 2. Planning Approach

This chapter describes the tasks and tools used to complete the Water Master Plan, the sources of public input, the assumptions made in the analysis, and the limitations of the Plan.

The Water Master Plan work included identifying future water system needs to provide a reliable water supply through 2035 and a strategy for addressing those needs, and developing a plan to implement the strategy. Stakeholder engagement and modeling tools were valuable in determining future needs and potential strategies, and in planning for implementation.

The Water Master Plan work was founded on a key assumption that existing supplies will continue to be available in the future to meet water demands. The District relies on a number of assets and operational and shorter term projects and programs to ensure that its current supplies are available for future use. The Water Master Plan does not analyze every water utility program or asset, but is aligned with operational and other shorter term plans and projects.

2.1. Water Supply and Infrastructure Master Plan Work Plan

Staff initiated the Water Master Plan project in early 2010 and completed the following work plan tasks:

- Assessed the current water supply system and its strengths and vulnerabilities,
- Assessed climate change impacts and the ability and need to incorporate climate change impacts in the planning process,
- Updated modeling tools to reflect current conditions,
- Developed planning objectives based on Board policies for evaluating and comparing water supply strategies,
- Identified future water supply and infrastructure needs based on future supply and demand projections, planning objectives, and the existing water supply system condition,
- Developed and analyzed water supply and infrastructure alternatives,
- Identified the recommended water supply strategy,
- Developed the approach for implementing the recommended water supply strategy,
- Prepared the Water Master Plan, and
- Engaged stakeholders throughout the Water Master Plan development.

The tasks involved in Water Master Plan development are illustrated in Figure 2 - 1. An overview of the scope of work is provided in Appendix B. The scope changed slightly as the project progressed, but generally followed the tasks outlined in Appendix B.

Figure 2 - 1. Water Supply and Infrastructure Master Plan Tasks

2.2. Modeling Tools

Multiple modeling tools were used to assist with technical analyses in the Water Master Plan. These tools are described below.

WEAP (Water Evaluation and Planning system): WEAP, which was developed by the Stockholm Environment Institute's U.S. Center, simulates the total management of current and future water resources in Santa Clara County. It accounts for facilities that recharge the County’s groundwater basins, the District’s local water system including the operation of its reservoirs and creeks, the District’s existing and proposed treatment and distribution facilities, the District’s raw water conveyance system, and imported water supplies. The model also accounts for non-District sources such as imported water from San Francisco Public Utilities Commission (SFPUC), recycled water, and local water developed by others. WEAP simulated water supply conditions under a variety of future water supply scenarios. WEAP output provides information on changes in groundwater storage, reservoir storage, utilization of local and imported water supplies, and the timing and location of water supply shortages. Information is provided by service area and by facility.

H2ONet: The District currently uses Innovyze’s H2ONet software for hydraulic modeling. The District has three separate hydraulic models for its water supply system.

> Raw Water System Model: Water supply sources (San Luis Reservoir, South Bay Aqueduct Terminal Tank, Anderson and Calero Reservoirs) to the water treatment plants (WTPs) and groundwater recharge turnouts
>
> East Treated Water System Model: Santa Teresa & Penitencia WTPs to the retailer turnouts on the Snell, East & Milpitas pipelines, and the SFPUC Intertie

West Treated Water System Model: Rinconada WTP to the retailer turnouts on the West Pipeline and Santa Clara, Mountain View & Campbell Distributaries.

Together, these three models simulate the District's raw and treated water supply system. The models include the District's pipelines, major valves, surface water reservoirs, storage tanks, and pump stations. The H2ONet model simulates steady state conditions, which shows a 'snapshot' in time of the water supply system and allows staff to determine system hydraulic and capacity constraints.

Groundwater Models: The District has developed calibrated flow models for the Santa Clara Plain, Coyote Valley, and Llagas Subbasins. The models are used to evaluate groundwater storage and groundwater levels under various operational and hydrologic conditions. The groundwater models simulate groundwater levels and storage with the recommended water supply strategy in place to evaluate whether the strategy is consistent with the District's basin management objectives.

Financial Model: The District prepares a 10-year financial forecast of the entire Water Utility Enterprise annually for the Protection and Augmentation of Water Supplies (PAWS) report[8]. The FY2012-13 PAWS report serves as the basis for the Water Master Plan 25 Year Forecast. This in-house financial model is used to project Water Utility revenues, costs, and reserve balances for the purposes of rate making. The model uses a revenue requirements approach, breaking out cost of service and projected water usage to derive projected water charges by customer class. The model projects water charges for the Districts two zones of benefit, W-2 in the North County and W-5 in the South County. The projected 25 year base case is compared to one that includes Water Master Plan projects. The difference between the scenarios is used to gauge the long-term Water Master Plan impact to groundwater production charges in the North County and the South County.

2.3. Stakeholder Engagement

Stakeholder engagement was an integral part of developing the Water Master Plan and critical to identifying the recommended water supply strategy. The Stakeholder Steering Committee (SSC) was convened in April 2010 to provide input and feedback on key Water Master Plan decisions and approaches. The SSC included representatives from agriculture, business, municipal government, environmental advocates, homeowner organizations, public advocacy groups, water retailers and other water and wastewater agencies. The Committee carried balanced representation from a wide variety of interests to develop a Water Master Plan that will be broadly supported by stakeholders and the community. The SSC generally met quarterly throughout development of the Water Master Plan. Copies of the SSC meeting materials are in Appendix C.

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[8] The FY2012-13 PAWS report can be found at http://www.valleywater.org/EkContent.aspx?id=7551&terms=protection+and+augmentation+of+water+supplies,

In addition to the SSC, each Board Advisory Committee had at least two opportunities to provide input during the Water Master Plan process. Staff also made presentations to the Water Retailers Committee, Water Retailer Subcommittees, and other agencies and organizations.

The District Board of Directors reviewed Water Master Plan development on several occasions to ensure consistency with Board policies and interests. Copies of Board agenda packages related to the Water Master Plan are in Appendix D.

A group of internal stakeholders provided valuable technical guidance for the plan. The Technical Team was made up of District staff with technical expertise in the areas of recycled water, conservation, raw water operations, supply planning, treated water operations, water quality, asset management, maintenance, groundwater, dams and storage, environmental compliance, and financial planning. The team met monthly and provided valuable technical advice throughout the project.

2.4. Assumptions

The Water Master Plan includes the following assumptions.

- Existing water supplies will continue to be available in the future to meet water demands. The FY13 -17 Capital Improvement Program[9] and the Water Utility Enterprise Five Year Operations Plan[10] will be implemented as planned to protect and maintain existing water supplies and infrastructure.
- Water conservation savings will increase to 98,500 AFY by 2030, consistent with the District's 2010 Urban Water Management Plan (UWMP)[11].
- Recycled water use will increase to 29,380 acre-feet per year (AFY) by 2035, consistent with the UWMP.
- State Water Project (SWP) and Central Valley Project (CVP) contract deliveries will be consistent with the State Water Project Reliability Report 2009 (Reliability Report 2009)[12] and the CALSIM II modeling results[13] for the Reliability Report 2009. The Reliability Report anticipates reduced deliveries as a result of climate change. Anticipated deliveries under different hydrologic conditions are summarized in Table 2-1.

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[9] http://www.valleywater.org/CIP.aspx

[10] http://www.valleywater.org/Services/2013-17WUOpsPlan.aspx

[11] http://www.valleywater.org/Services/UWMP2010.aspx

[12] State Water Project Delivery Reliability Report 2009 http://baydeltaoffice.water.ca.gov/swpreliability/Reliability2010final101210.pdf provides current and future State Water Project delivery allocations and incorporates the restrictions on SWP and CVP operations in accordance with the biological opinions of the U.S. Fish and Wildlife Service and National Marine Fishery Service issued on Dec. 15, 2008 and June 4, 2009, respectively. The projection for future (2029) conditions also incorporates climate change and an accompanying rise in sea level.

[13] CALSIM II is the model used to simulate California State Water Project (SWP)/Central Valley Project (CVP) operations based on historical hydrology. CALSIM II modeling performed for the 2009 Reliability Report provides the basis for SWP and CVP allocations.

- State Water Project and Central Valley Project contract deliveries will be consistent with the US Bureau of Reclamation M&I Reallocation Agreement[14].
- The District will participate in statewide efforts to restore the reliability of supplies imported through the Delta such as the development of the Bay Delta Conservation Plan.
- SFPUC supplies will continue to be delivered to Santa Clara County based on Interim Supply Allocations through 2018 and Individual Supply Guarantees after 2018. Anticipated deliveries under different hydrologic conditions are summarized in Table 2-1.

Table 2-1. Assumed Imported Water Supply Deliveries Summary

Source of Supply	Contract Amount	Normal Year (2002)	Multiple Dry Year Average (1987 – 1992)	Single Dry Year (1977)
State Water Project	100,000 AFY	64,000 AFY	31,830 AFY	11,000 AFY
Central Valley Projects	152,500 AFY	108,120 AFY	90,270 AFY	69,180 AFY
SFPUC Through 2018		65,500 AFY	50,150 AFY	52,600 AFY
SFPUC After 2018		63,850 AFY	48,500 AFY	50,950 AFY

- Local surface water yields will be consistent with historic yields. Yields will not change as a result of climate change impacts or new restrictions on operations. Further, the District will implement the Fisheries and Aquatic Habitat Collaborative Effort and maintain water rights licenses with the State Water Board and Department of Fish and Game.
- The District will complete the seismic retrofits necessary to restore Anderson, Calero, Almaden, and Guadalupe Reservoirs to full operating capacity by 2020.
- The District will expand Rinconada Water Treatment Plant capacity to 100 million gallons per day by 2020.
- The District will complete the Madrone Pipeline Restoration project by 2015 to restore the pipeline capacity to at least 20 cfs.
- The District will complete the Main Avenue Pipeline Restoration project by 2025, which will restore pipeline capacity of 37 cfs and reconnect Anderson Reservoir to groundwater recharge facilities in the Llagas Subbasin.
- The District will maintain and replace existing and future assets to maintain their level of service consistent with the District's Asset Management Framework.

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[14] Reallocation Agreement: The District entered into a 25-year water reallocation agreement in 1997 with U.S Bureau of Reclamation (Reclamation) and parties in the San Luis & Delta Mendota Water Authority to supplement and support the Bureau's draft Municipal and Industrial (M&I) Water Shortage Policy. The draft policy provides M&I allocations of 75% or more in most years, but these can drop to 50% of historic use, or to public health and safety levels, when severe water shortages are imposed on irrigation contractors.

2.5. Plan Limitations

The Water Master Plan focuses on long-term water supply reliability. It does not include short term operations planning, infrastructure reliability planning, or asset management planning, though it does coordinate with these efforts to ensure consistency between operations and planning. Other District programs, summarized below, focus on these areas.

Operations Planning: The Water Master Plan does not include short-term operations planning. The District develops short-term water supply plans including daily, annual, and three-year plans based on current conditions. The short-term plans consider the same factors as the Water Master Plan (e.g., groundwater storage, carryover storage, imported water allocations, etc), but on a much shorter time frame. The plans include recommendations for the level of short-term water use reductions that should be implemented on an annual basis.

Infrastructure Reliability Program: The District has an infrastructure reliability program designed to implement projects that will improve post-disaster reliability of the District's water supply and distribution system. The projects were recommended in the District's 2005 Water Infrastructure Reliability Project Report and include SCADA system improvement, new emergency groundwater wells, and line valves. The goal of the program is to reduce post-disaster system outage time.

Asset Management Program: The Water Master Plan does not identify investment strategies for baseline supplies and infrastructure. For example, the Water Master Plan will not make decisions on activities that protect existing assets. The Water Master Plan will however, identify the capacities needed from existing assets. And, in cases where augmentation of an existing asset is required to meet future demands, the Water Master Plan will coordinate with any renewal efforts planned for that asset. Decisions on investments in existing assets are done through Asset Management Planning. The District is developing an Asset Management Plan (AMP) that will lay out future investment needs for existing and planned future assets. The Water Master Plan will serve as input into the AMP.

CHAPTER 3. Planning Objectives and Evaluation Criteria

This chapter describes the planning objectives and evaluation criteria that were used to evaluate water supply alternatives developed for the Water Master Plan. Many different water supply alternatives provide long-term water supply reliability, but each has different benefits and costs. Planning objectives provide a basis for distinguishing between water supply options and balancing multiple objectives. The objectives help develop the recommended water supply strategy.

3.1. Overview of Planning Objectives

One of the first tasks completed as part of the Water Master Plan project was the development of planning objectives. The planning objectives guide water supply alternative development and include evaluation criteria to measure how well different water supply strategies meet the objectives. Staff developed the planning objectives based on Board policies[15] and solicited input on the objectives and their relative importance from the Stakeholder Steering Committee (SSC). Staff presented the planning objectives to the Board on January 25, 2011. Table 3-1 presents the list of planning objectives.

Table 3-1. Water Master Plan Planning Objectives

Planning Objective	Sub-Objective(s)
1. Ensure Water Supply Reliability	1.1 Meet Service Area Demands
	1.2 Develop Local Supplies
	1.3 Maximize Flexibility to Respond to Change
2. Ensure Drinking Water Quality	2.1 Protect Groundwater Quality
	2.2 Meeting Drinking Water Quality Regulations
	2.3 Maximize Treatability
3. Minimize Cost Impacts	3.1 Minimize life-cycle costs
4. Maximize Implementation Potential	4.1 Maximize District influence over supplies and operations
	4.2 Minimize implementation complexities and barriers
5. Maximize Water Conservation	5.1 Maximize Water Conservation
6. Protect the Natural Environment	6.1 Provide benefits to watersheds, creeks, and natural resources
	6.2 Reduce greenhouse gas emissions
7. Ensure Community Benefits	7.1 Ensure equitable distribution of benefits
	7.2 Provide flood protection and recreation benefits

3.2. Planning Objective Descriptions

The planning objectives, sub-objectives, and evaluation criteria are described below. They are listed in order of priority. The objectives and evaluation criteria are designed to be quantitatively or qualitatively measurable, non-redundant, concise, and understandable. The sub-objectives provide more detailed criteria for evaluating supply alternatives.

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[15] http://www.valleywater.org/About/Board_of_Directors/Board_Policies/Board_Policies.aspx.

Objective 1 – Ensure Water Supply Reliability

Providing a reliable supply of water is the highest priority objective for the Water Mater Plan. This objective relates to Board Ends Policy 2.1 "Current and future water supply for municipalities, industries, agriculture and the environment is reliable." The District works to ensure water supply reliability by maintaining a diverse mix of water supplies and maximizing the flexibility of the water supply and infrastructure system so that it can respond to changing conditions.

Sub-Objective 1.1 – Meet Service Area Demands

This sub-objective is to meet the District's long-term water supply reliability level of service goal to develop water supplies designed to meet at least 100 percent of average annual water demand identified in the District's Urban Water Management Plan during non-drought years and at least 90 percent of average annual water demand in drought years. If the District cannot meet demand, the result would be short-term water use reductions.

The evaluation criterion for this sub-objective is the severity of short-term water use reductions associated with the water supply strategy. WEAP, the water supply system model, calculates the severity as a percentage of short-term water use reductions (percent cutback) needed to avoid water supply shortages based on the District's Water Shortage Contingency Plan (WSCP)[16].

Sub-Objective 1.2 – Develop Local Supplies

This sub-objective is to develop local and regional dry-year supplies as a means for reducing risks to water supply reliability. Currently, more than one-half of the county's water supply is imported, and the majority of these imported supplies come from the Delta. Water imported from the Delta accounts for about 40 percent of the supply on average. Reductions in these surface water supplies can result from hydrologic variations or regulatory mandates to protect the fisheries and habitat of the Delta. In addition, a single event, such as an earthquake or levee failure, could interrupt this supply more than six months.

The evaluation criterion for this sub-objective is the amount of local or regional dry-year supply associated with the water supply alternative. WEAP output was used to estimate the amount of dry-year supply for each water supply alternative.

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[16] The District's Water Shortage Contingency Plan is in Chapter 6 of the 2010 Urban Water Management Plan, which is available at http://www.valleywater.org/Services/UWMP2010.aspx.

Sub-Objective 1.3 – Maximize Flexibility to Respond to Change

This sub-objective is to maximize the District's ability to respond to short-term and long-term changes. Short-term changes include infrastructure failure due to age or disaster, or temporary water quality issues such as algae blooms. These changes can necessitate switching supply sources or using alternative pipelines. Long-term changes could include changes in supply availability due to climate change and reservoir re-operations to release more or less water to meet aquatic habitat needs. The focus of this sub-objective is on infrastructure.

The evaluation criterion for this sub-objective is the level of added redundancy and interconnectedness to the water supply system which is based on professional judgment of District staff.

Objective 2 – Ensure Water Quality

This objective relates to Board Ends Policies 2.1.1 "Aggressively protect groundwater basins from the threat of contamination and maintain and develop groundwater to optimize reliability and to minimize land subsidence and saltwater intrusion", 2.3 "Reliable high quality drinking water is delivered", and 2.3.1 "Meet or exceed all applicable water quality regulatory standards". The District's water quality efforts focus on protecting both groundwater and treated drinking water supplies. The purpose of these efforts is to protect public health and drinking water supplies for current and future beneficial use.

Sub-Objective 2.1 – Protect Groundwater Quality

This sub-objective is to protect groundwater quality from the threat of contamination. About half the water used in Santa Clara County is pumped from the ground. In the Coyote Valley and Llagas groundwater subbasins (south county), all the drinking water supply is pumped from the ground. Groundwater is difficult to clean up once it has been contaminated. The primary water quality indicators are nitrate, chloride, and total dissolved solids.

The evaluation criterion for this sub-objective is the degree to which a water supply alternative improves groundwater quality which is based on professional judgment of District staff.

Sub-Objective 2.2 – Meet Drinking Water Quality Regulations

The District's treated drinking water must meet drinking water quality regulations including a long list of state and federal water quality regulations related to chemical, biological, radiological, and physical parameters prior to treatment, during treatment, and within the treated water distribution system. A key treatment challenge is to maximize the disinfection of biological contaminants such as bacteria, viruses, and protozoa, while minimizing the formation of harmful disinfection by-products such as bromate and trihalomethanes. When using ozone as the primary disinfectant, the challenge is to minimize bromate formation in the presence of high levels of bromide often found in Delta water.

The evaluation criteria for this sub-objective are the quality of the source water to the drinking water treatment plants and whether additional treatment facilities will be needed to meet standards. Both are based on professional judgment of staff to assess source water quality and treatment effectiveness.

Sub-Objective 2.3 – Maximize Treatability

This sub-objective is to maximize treatability by minimizing large or sudden fluctuations in water quality delivered to the drinking water treatment plants. Large or sudden fluctuations in algae, turbidity, salinity, organic carbon, pH and temperature can create operational problems that can potentially result in plant shutdowns, with algae being of greatest concern. The District collaborates and cooperates with other agencies to protect and monitor surface water sources. The District can manage treatability by changing water sources and maintaining storage in reservoirs.

The evaluation criterion for this sub-objective is based on the amount of high-quality source water available for blending to mitigate major fluctuations in source water quality which is based on professional judgment of District staff.

Objective 3 – Minimize Lifecycle Costs

This objective relates to Executive Limitation 5.4 that the Board Appointed Officers shall not “spend extravagantly, inefficiently, or in ways more costly than necessary.” Cost impacts include capital and operations costs associated with water supply alternatives, including maintenance and mitigation costs.

The evaluation criterion for this objective is the total present value of the water supply alternative. Staff calculated the present value of water supply alternatives using standard engineering and economic methods.

Objective 4 – Maximize Implementation Potential

This objective relates to Ends Policy E-1.2 “Engagement with federal, state, regional and local agencies, water retailers and the community is necessary.” The District needs to be able to implement, operate, and maintain the water supply alternatives in order to provide the benefits associated with those alternatives. Cost is only one consideration in the ability to implement projects and programs and is captured in Objective 3 – Minimize Cost Impacts. Implementation also depends on how much influence or control the District has over the water supply alternative and the complexity of water supply alternative implementation.

Sub-Objective 4.1 – Maximize District Influence over Supplies and Operations

This sub-objective is to maximize District influence over water supply sources and water supply operation. With more influence, the District can optimize water supply system performance. For example, the District has greater ability to affect deliveries from its own reservoirs than deliveries from the State and Federal water projects. Likewise, the District has greater ability to affect expansion of the recycled water system in the South Bay Water Recycling and South County Regional Wastewater Authority service areas since it is a partner in those recycled water programs. Local and regional partnerships are another means to increase the District's influence on supplies and operations, and are consistent with State policy direction to implement integrated regional water management.

The evaluation criterion for this sub-objective is the amount of District influence on the performance of the water supply alternative under a variety of conditions which is based on professional judgment of District staff.

Sub-Objective 4.2 – Minimize Implementation Complexities and Barriers

This sub-objective is to minimize the complexities of and barriers to implementing water supply alternatives. Legal and regulatory requirements, conflicts with existing policy, public perception, institutional and contractual relationships, and technical complexity all may affect the District's ability to implement a project or program include. For instance, a local water exchange (i.e., an exchange with San Jose Water Company or the San Francisco Public Utilities Commission) might be easier to implement than an exchange that involves moving water through the Delta.

The evaluation criterion for this sub-objective is the level of complexity associated with implementing the water supply alternative which is based on professional judgment of District staff.

Objective 5 – Maximize Water Conservation

This objective relates to the Board Ends Policy 2.1.6, "Maximize water use efficiency, water conservation and demand management opportunities." The District has a history of promoting water conservation and other water use efficiency efforts. The District anticipates that conservation savings will reduce the need for new supplies by offsetting demands by about 20 percent by 2030. Conservation also provides other benefits such as energy conservation, reduced greenhouse gas emissions, reduced costs, and reduced demand for wastewater treatment. In addition, water conservation savings are minimally affected by changes in hydrology.

The evaluation criterion for this objective is the estimated amount of conservation savings associated with each water supply alternative above the 98,500 acre-feet per year by 2030 anticipated in the UWMP.

Objective 6 – Protect the Natural Environment

This objective relates to Board Ends Policies 4.1 "Healthy creek, bay and other aquatic ecosystems," 4.2 "Clean, safe water in creeks and bay," and 4.3.2 "Reduce greenhouse gas emissions when reasonable and appropriate." The District and its customers value the natural environment. While the purpose of the Water Master Plan is to provide for water supply reliability, it is important that the projects and programs be considered in the context of their impacts on the environment. This includes benefits to watersheds, streams, and natural resources such as water quality and habitat protection. It also includes maximizing energy efficiency as a means to reduce greenhouse gas emissions.

Sub-Objective 6.1 – Provide Benefits to Watersheds, Streams, and Natural Resources

This sub-objective is that water supply alternatives provide benefits to watersheds, streams, and natural resources. Santa Clara County is rich in natural resources and the District participates in and supports watershed stewardship to protect and enhance them. These activities include protecting and restoring fisheries and aquatic species, preserving and restoring natural stream functions and processes, protecting and restoring riparian and in-stream habitat conditions, and protecting and improving water quality in streams and the Bay.

The evaluation criterion for this sub-objective is the degree of benefit the water supply alternative provides to environmental resources and in-stream and reservoir water quality by the strategy and is based on the professional judgment of District staff.

Sub-Objective 6.2 – Reduce Greenhouse Gas Emissions

This sub-objective is to reduce greenhouse gas emissions associated with the District's water supply system. Climate change is caused by a phenomenon known as the greenhouse effect, which slowly warms the planet and is intensified by an increase in the quantity of certain atmospheric greenhouse gases (GHGs). Planning for new or future water supplies and infrastructure should consider both mitigation (the need for reduced GHG emissions) and adaptation (ability to operate efficiently and reliably in a changing climate). Adaptation is captured by the operational flexibility sub-objective (Sub-Objective 1.3). This sub-objective addresses mitigation. The California Water Plan 2009 suggests that local agencies should implement cost effective energy efficiency measures in their water projects as a means of reducing GHG emissions.

The evaluation criterion is for this sub-objective is the change in the energy intensity of the District's water supply and is based on qualitative estimates of changes in energy intensity from different water supply alternatives based on the District's "Watts to Water" report[17].

Objective 7 – Ensure Community Benefits

This objective relates to Board Executive Limitation EL-2 "With respect to interactions with consumers or those applying to be consumers, the BAOs shall not cause or allow conditions, procedures, or decisions which fail to fulfill reasonable consumer expectations for good service, are unsafe, undignified, or unnecessarily intrusive." This objective also relates to Board Ends Policies 3.2 "Reduced potential for flood damages," and 4.3.1 "Support additional trails, parks, and open space along creeks and in the watersheds when reasonable and appropriate." The District provides multiple services to the community. In addition to environmental stewardship and water supply, the District provides flood protection services and supports recreational opportunities when possible.

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[17] http://www.valleywater.org/programs/waterconservation.aspx

Sub-Objective 7.1 – Ensure Equitable Distribution of Benefits

This sub-objective is to provide equal availability of water service to all existing and future water users.

The evaluation criterion for this sub-objective is the degree to which water supply benefits are provided throughout the District's service area which is based on the professional judgment of District staff.

Sub-Objective 7.2 – Provide Flood Protection and Recreational Benefits

This sub-objective is to provide flood protection and recreational benefits as part of the water supply projects. Flood protection benefits could be associated with water supply projects that increase reservoir storage or reduce storm water runoff to creeks. Recreation benefits could be associated with increased reservoir surface area and additional recharge ponds that would support recreation.

The evaluation criterion for this sub-objective is the degree to which the water supply alternative provides flood protection and recreation benefits and is based on the professional judgment of District staff.

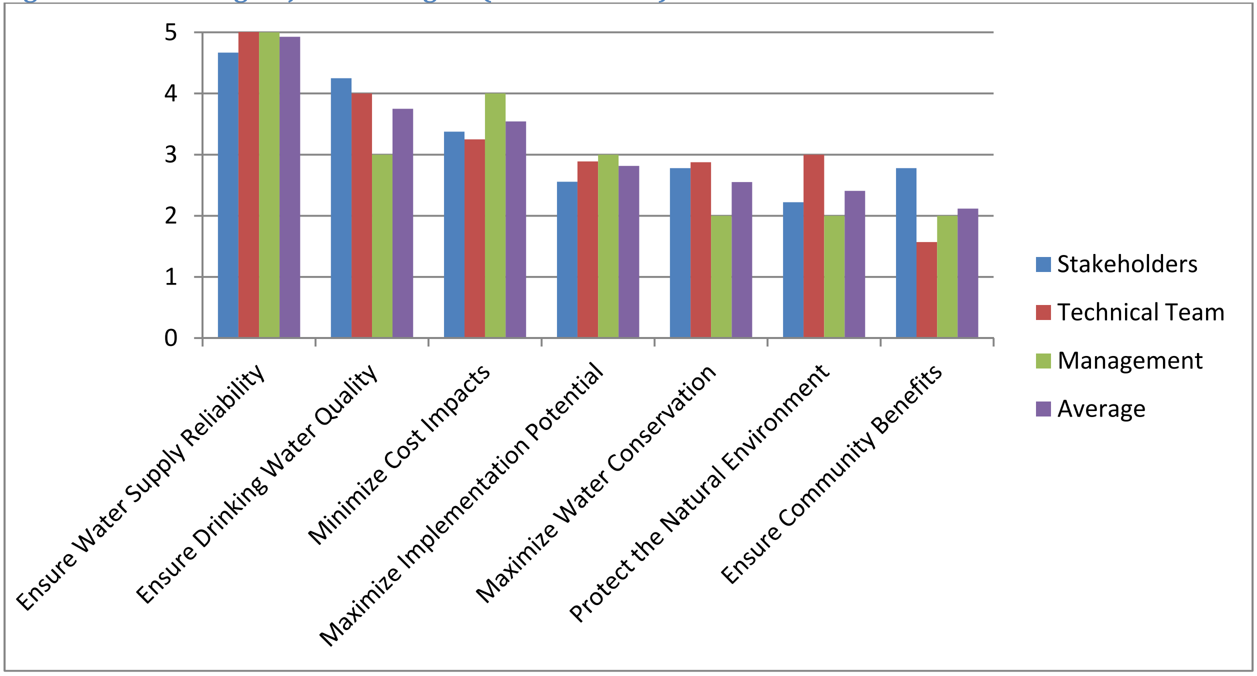
3.3. Rankings for Planning Objectives and Sub-Objectives

The Stakeholder Review Committee, technical staff, and management staff reviewed the seven planning objectives and weighted them using a forced budgeting method. Individuals were asked to use 21 "dots" to indicate their preferences in the objectives. The results of the weighting exercise are shown in Figure 3-1.

The various groups had similar weightings for ensure water supply reliability, ensure water quality, and maximize implementation potential. The stakeholders and technical staff had similar weights for maximize water conservation and minimize cost impacts, though the management staff weighted maximize water conservation lower and minimize cost impacts higher. Larger variations were also observed in how the different groups weighted protect the natural environment and ensure community benefits.

All the groups weighted *ensure water supply reliability*, *ensure drinking water quality*, and *minimize cost impacts* as the top three objectives. *Maximize implementation* was the next highest objective, based on average weights, followed by *maximize water conservation*, *protect the natural environment*, and *ensure community benefits*.

Figure 3-1. Planning Objective Weights (Scale of 1 to 5)



The Technical Team discussed the relative weights of the different planning sub-objectives. Their weights are shown in Table 3-2.

Table 3-2. Sub-Objective Weights

Objectives	Sub-Objectives	Weight (1-5)
Ensure Water Supply Reliability	Meet service area demands	5
	Develop local supplies	3
	Maximize flexibility to respond to change	2
Ensure Drinking Water Quality	Protect groundwater quality	5
	Meet drinking water quality regulations	4
	Maximize treatability	1
Minimize Cost Impacts	Minimize lifecycle costs	5
Maximize Implementation Potential	Maximize District influence over supplies and operations	5
	Minimize implementation complexities and barriers	2
Maximize Water Conservation	Maximize water conservation	5
Protect the Natural Environment	Provide benefits to watersheds, streams, and natural resources	5
	Reduce greenhouse gas emissions	2
Ensure Community Benefits	Ensure equitable distribution of benefits	5
	Provide flood protection and recreational benefits	5

3.4. Summary

Staff identified and evaluated multiple objectives and sub-objectives for the Water Master Plan. The objectives reflect the District's mission and policies. The highest priority objectives are Ensure Water Supply Reliability, Ensure Drinking Water Quality, and Minimize Costs.

CHAPTER 4. Water Supply Reliability Outlook

This chapter describes the supply shortages, system constraints, and risks that the Water Master Plan must address in order to meet the level of service goal for a reliable supply of water in Santa Clara County. In order to provide a reliable water supply into the future, the District must plan to avoid water shortages. In most cases, water supply shortages can be predicted by analyzing long-term water demand projections and expected supply availability. Some supply shortages, however, are unpredictable due to a variety of risks such as infrastructure failure or unexpected growth in population.

4.1. Strengths, Weaknesses, Opportunities and Threats (SWOT) Analysis

A SWOT analysis is an analysis of the organization's strengths, weaknesses, opportunities and threats. It is a popular first step in business strategic planning, and was used in the Water Master Plan to identify the effective areas of the water supply system, and the areas where improvements to the system may be needed. The SWOT analysis, along with the water supply shortage and capacity constraint analyses, provided a basis for identifying the potential projects and water supply strategies presented in Chapter 5 of this report. The analysis of threats helped in identifying system risks, discussed later in this chapter. The full SWOT analysis is presented in Appendix E. The highlights of the SWOT analysis are provided below in Table 4-1.

Table 4-1. SWOT Analysis

	Strengths	**Weaknesses**
Internal	• Diverse and complex system with multiple sources and great operational flexibility • Existing system provides a good foundation for additional supplies • Successful conservation programs • Redundancy in east treated water system, raw water system and supply sources	• Lack of redundancy in west treated water system • Some facilities are in poor condition • South county supplies are not as diverse as north county
	Opportunities	**Threats**
External	• Expansion of recycled water use • Additional groundwater recharge • System re-operations or expansion to maximize existing supplies	• Imported water availability and reliability • Reservoir operating restrictions • Endangered species permitting requirements • Infrastructure failure • Supply or demand changes

4.2. Water Supply Outlook

The District prepares an Urban Water Management Plan (UWMP) every five years in accordance with the Urban Water Management Planning Act (UWMP Act) (Division 6 Part 2.6 of the Water Code §10610 - 10656). The District's latest 2010 UWMP predicts future demand, supplies, and shortfalls for a period of 25 years, through 2035. The Water Master Plan uses the UWMP analysis as a basis for determining future water supply shortages.

4.2.1. Demand Projections

Total water demand for 2011 in Santa Clara County was about 330,000 AF[18]. The District's 2010 UWMP estimates that average annual water demands will increase to about 423,000 AF after conservation savings in 2035 as population and jobs grow. Table 4-2 shows the demographic projections for Santa Clara County over the 25 year planning horizon.

Table 4-2. Projected Population and Job Growth in Santa Clara County[19]

	2010	2015	2020	2025	2030	2035
Population	1,822,000	1,945,300	2,063,100	2,185,800	2,310,800	2,431,400
Households	614,000	653,810	696,530	739,820	785,090	827,330
Total Jobs	906,270	981,230	1,071,980	1,177,520	1,292,490	1,412,620

Although population is expected to increase over time, per capita water use is expected to decrease. In his 20 percent by the year 2020 plan, former Governor Schwarzenegger determined that for California to continue to have enough water to support its growing population, it needs to reduce the amount of water each person uses per day. This reduction of 20 percent per capita use by the year 2020 is included in the Water Conservation Act of 2009. The District's water retailers are obligated to comply with the Act. The baseline per capita water use for the region is 175 gpcd. This is projected to decrease to about 140 gpcd by 2020 in accordance with the 20 percent reduction requirements.

The District and its retailers estimate future demand generally based on expected population growth and per capita water use[20]. Despite conservation efforts, water demand is projected to increase in the future. Projected future demand is shown in Table 4-3. The demands are divided by groundwater subbasin[21] and include the retailers' planned 20 percent reduction in per capita water use. Most of the increase in water demands will occur in northern Santa Clara County. In southern Santa Clara County

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[18] This is demand after conservation savings and does not include environmental demands, which totaled about 125,000 AF in 2011, as shown in Chapter 1, Figure 1-1.

[19] Association of Bay Area Governments Projections, 2009

[20] For detailed information on demand calculations, see the District's and Retailers' 2010 Urban Water Management Plans.

[21] The groundwater basin in Santa Clara County is divided into three subbasins: Santa Clara, Coyote, and Llagas. Additional detail on the groundwater basins is available in the District's 2012 Groundwater Management Plan, 2010 Urban Water Management Plan, and Appendix A.

(Llagas and Coyote), where about half of all water use is for agriculture, overall water demands will stay about the same through 2035.

Table 4-3. Demand Projections after Conservation Savings (AF) [22]

	2015	2020	2025	2030	2035
Santa Clara (North)	316,528	326,449	336,699	347,972	359,922
Llagas	46,671	45,063	45,371	45,855	46,332
Coyote	12,521	13,298	14,350	15,543	16,666
Total	375,720	384,810	396,420	409,370	422,920

The demand projection for 2035 would be about 521,000 AF, or almost 100,000 AF more, without planned water conservation savings. Table 4-4 shows the projected conservation savings through year 2035, and what demand projections would be without these savings. Using the year 1992 as a baseline, the District saved 50,600 AFY in year 2010, which is on track to meeting the District's long-term goal of 98,500 AFY by 2030. These conservation projections are consistent with retailer projections and the Water Conservation Act of 2009 requirements.

Table 4-4. Projected Conservation Savings (AF)

	2015	2020	2025	2030	2035
Conservation	63,100	76,100	86,700	98,500	98,500
Total Demand w/out Conservation	438,820	460,910	483,120	507,870	521,420

Conservation includes both passive and active savings. Passive savings are due to changes in building codes such as requirements for low flow plumbing fixtures. Active savings are due to additional efforts such as offering incentives for installing efficient irrigation equipment or low-water use landscape. Water conservation programs implemented since 1992 have had a large influence in demand reduction, and will continue to contribute to conservation savings in the future. Section 4.2.2 and Chapter 8 include further discussion of the expected increase in conservation savings. Chapter 5 of the District's Urban Water Management has more information on water conservation programs.

4.2.2. Use and Conservation by Sector

Water use in Santa Clara County falls into two basic categories: municipal and industrial (M&I) and agricultural. The demands presented in this chapter are the sum of M&I and Agricultural demands. On a countywide basis, M&I uses constitute about 90 percent of demand. Agricultural demands are predominantly in the southern portion of the county and make up the remaining 10 percent of demands. M&I uses can be further broken down by type of use or sector. Figure 4-1 presents the percentage of use by sector in Santa Clara County for 2010 and projected for 2035. The distribution of use remains relatively constant over the planning horizon with the most significant change being a 2% decrease in percentage of agricultural use. Nearly one-half of the identified residential water use is outdoors.

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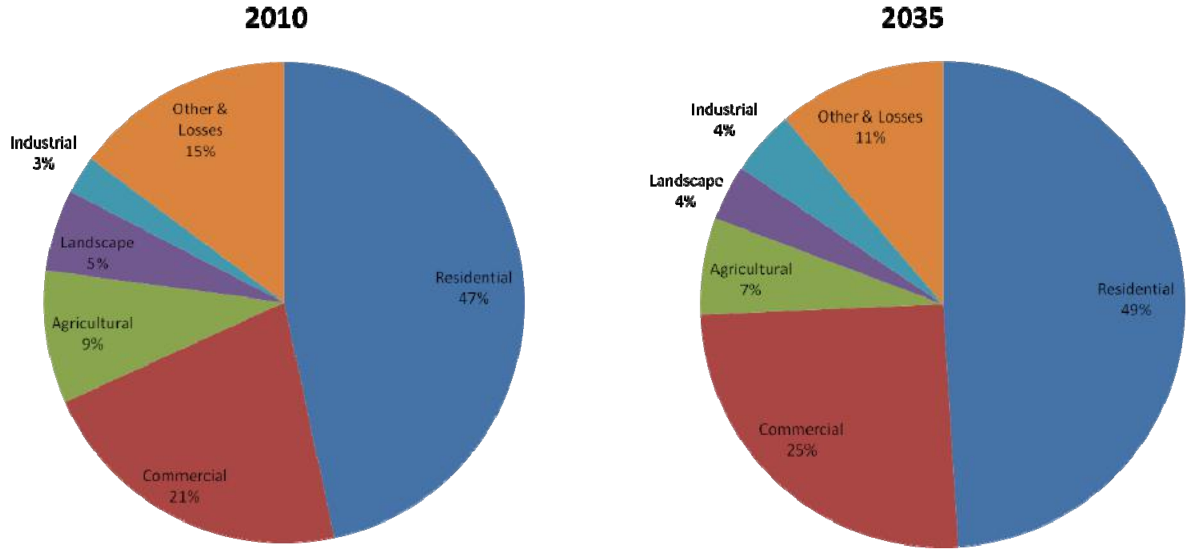
[22] The demands do not include environmental demands, which totaled about 125,000 AF in 2011. The District makes releases from reservoirs or raw water pipelines to meet environmental demands. Most releases for environmental demands contribute to groundwater recharge as they flow through the stream beds, and can later be pumped for Municipal or Agricultural use.

Figure 4-1. Percentage of Water Use by Sector[23]



Conservation can also be divided by sector, though the use categories are slightly different than the demand use categories. "Other and Losses" does not apply for conservation, and "Industrial" is not separated from "Commercial". Figure 4-2 presents the percentage of conservation savings by sector for 2010 and projected for 2035.

While distribution of demand remains relatively constant, there is a large shift in percentage of conservation by sector from residential to landscape. Conservation is projected to increase in all four sectors over the next 25 years, but by 2035, landscape savings are projected to make a much larger contribution to overall savings[24].

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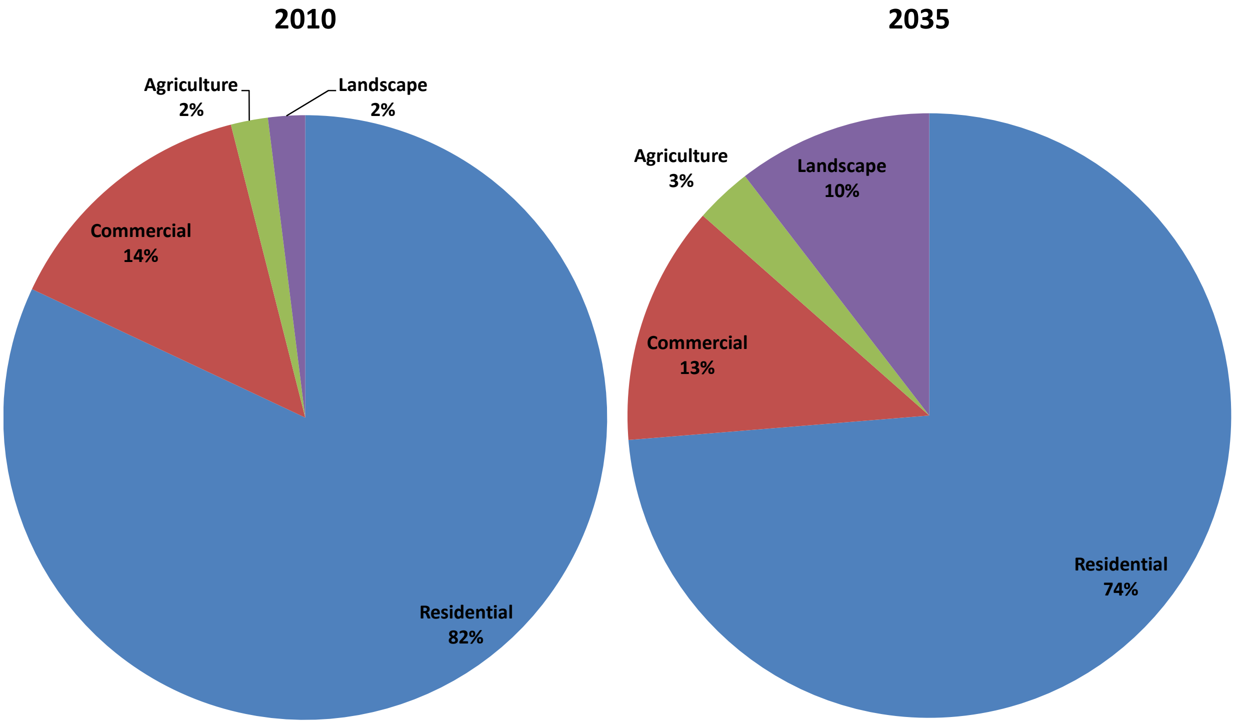
[23] Data for all sectors except agriculture are taken from water retailers 2010 UWMPs; however, not all retailers report usage in every sector. Agricultural use data is taken from SCVWD's 2010 UWMP. Percentages are approximations based on best available data.

[24] Residential and Commercial percentages are for indoor use. Outdoor use is included in landscaping.

Figure 4-2. Percentage of Water Conservation by Sector

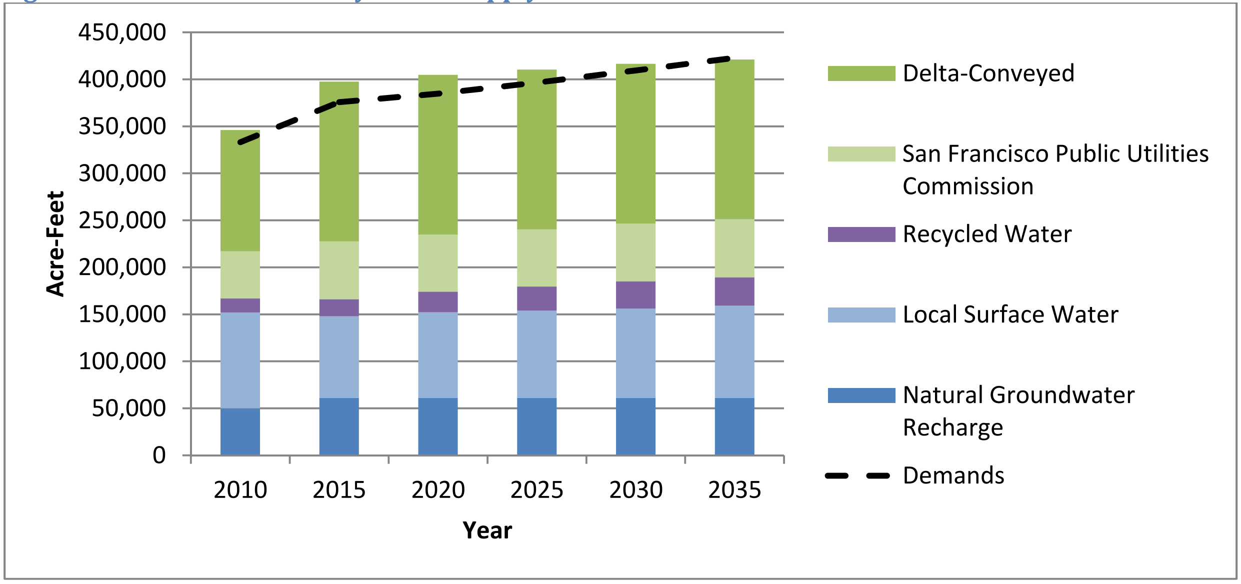


4.2.3. Supply Mix

Countywide water supply needs are met through a variety of sources including natural groundwater recharge, local surface water, water imported from the Delta through the Central Valley Project and the State Water Project, imported water delivered by the San Francisco Public Utilities Commission, and recycled water. Water conservation meets the remaining supply needs. Figure 4-3 depicts the average sources of supply that meet Santa Clara County's needs.

A brief description of supply sources follows. More detailed information is available in Chapter 3 of the District's Urban Water Management Plan. Detailed information on water supply infrastructure is available in Appendix A.

Figure 4-3. Santa Clara County Water Supply Sources



Local Sources: In the Santa Clara Valley, groundwater basins are replenished through both natural and managed recharge. Natural groundwater recharge includes rainfall, seepage from surrounding hills, seepage into and out of the groundwater basin, leakage from pipelines, and irrigation return flows. Natural groundwater recharge varies based on rainfall and groundwater levels. On average, natural groundwater recharge provides about 61,000 AFY of supply[25]. The District supplements natural recharge by delivering imported water (described below) and local surface water to groundwater recharge facilities.

Local reservoirs and streams capture rainfall and run-off. This water is used for recharge, irrigation, or drinking water treatment. On average, the District's local surface water supplies will provide about 87,000 AFY in 2035.[26] On average, San Jose Water Company and Stanford University local surface water supplies provide additional supplies of about 11,000 AFY. The District's local supplies will remain about the same through 2035, but will vary with varying hydrology, discussed in Section 4.2.4.

Recycled water is a local source, available in dry years, and relatively immune from changes in hydrology. Recycled water is produced by the county's four wastewater treatment plants, owned and operated by local cities within the county. It is municipal wastewater that has been treated to levels that make it appropriate for various non-drinking water (non-potable) purposes. All recycled water used in Santa Clara County is tertiary treated, which means it has undergone three stages of treatment. Although the second stage of treatment is sufficient for landscape irrigation, the county's recycled water providers go above that standard. Growth in the use of recycled water is dependent on the amount of wastewater produced in the county. Table 4-5 identifies the projected total amount of wastewater flows in the county through 2030. Recycled water use is projected to increase from about 15,000 AF in 2011 to 29,000 AF in 2035[27].

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[25] Santa Clara Valley Water District, Urban Water Management Plan, 2010, Ch. 3, p. 10,

[26] Currently, District surface water supplies are constrained to an average of about 76,000 AFY by operating restrictions on local reservoirs for seismic safety. These supplies are anticipated to be restored by 2025.

Table 4-5. Projected Wastewater Flows (MGD) and Recycled Water Production (AFY)

	2015	2020	2025	2030	2035
Wastewater Flow	178	187	195	204	Not Available
Recycled Water Production	18,680	22,280	25,980	29,180	Not Available

Imported Sources: Imported supplies are used to meet a large percentage of county water needs– about 55 percent on average. Imported water conveyed though the Delta via the State Water Project (SWP) and Central Valley Project (CVP) is used to supply District drinking water treatment plants, groundwater recharge facilities, and irrigators. On average, more than 70 percent of Delta-conveyed supply is delivered to treatment plants, almost 30 percent is used for recharge, and a small percentage is delivered to irrigators. In addition, when available, the District stores excess Delta-conveyed supplies in the Semitropic Groundwater Bank and San Luis Reservoir in the Central Valley, and locally in Anderson and Calero Reservoirs. The District has a contract for 100,000 AFY of SWP water and 152,500 AFY of CVP water. However, the actual amount of water allocated under these contracts each year is typically less than these contractual amounts and depends on hydrology and regulatory restrictions. The average allocation of Delta-conveyed water is about 170,000 AFY and is not expected to change between now and 2035.

Santa Clara County began using San Francisco Public Utilities Commission (SFPUC) Hetch-Hetchy system water to supplement local supplies in 1952. This water is provided to north county cities with access to Hetch-Hetchy pipelines. On average, the SFPUC delivers about 61,000 AFY to Santa Clara County, which is not expected to change between now and 2035.

4.2.4. Supply Variability and Hydrology

One of the most significant assumptions for water supply planning is weather variability. The District uses historical hydrology to model future weather patterns. The historical hydrology used for this analysis spans from 1922 through 2003[28] and represents a broad range of water supply conditions. This hydrologic sequence was selected to be consistent with state and federal water project modeling and projections. Santa Clara County experiences drastic changes in year-to-year annual precipitation; therefore, the longer the climate record, the more useful the historical data.

The variation in precipitation, both locally and in the Sierra Nevada Mountains, results in a wide variation in the amount of water supply available from year to year. Demand also varies with hydrology. In wetter years, demand decreases as less water is needed for irrigation and landscaping. In many years, annual supplies exceed demands, while in some years demands can greatly exceed supplies. This concept is illustrated in Figure 4-4 based on 2035 demands.

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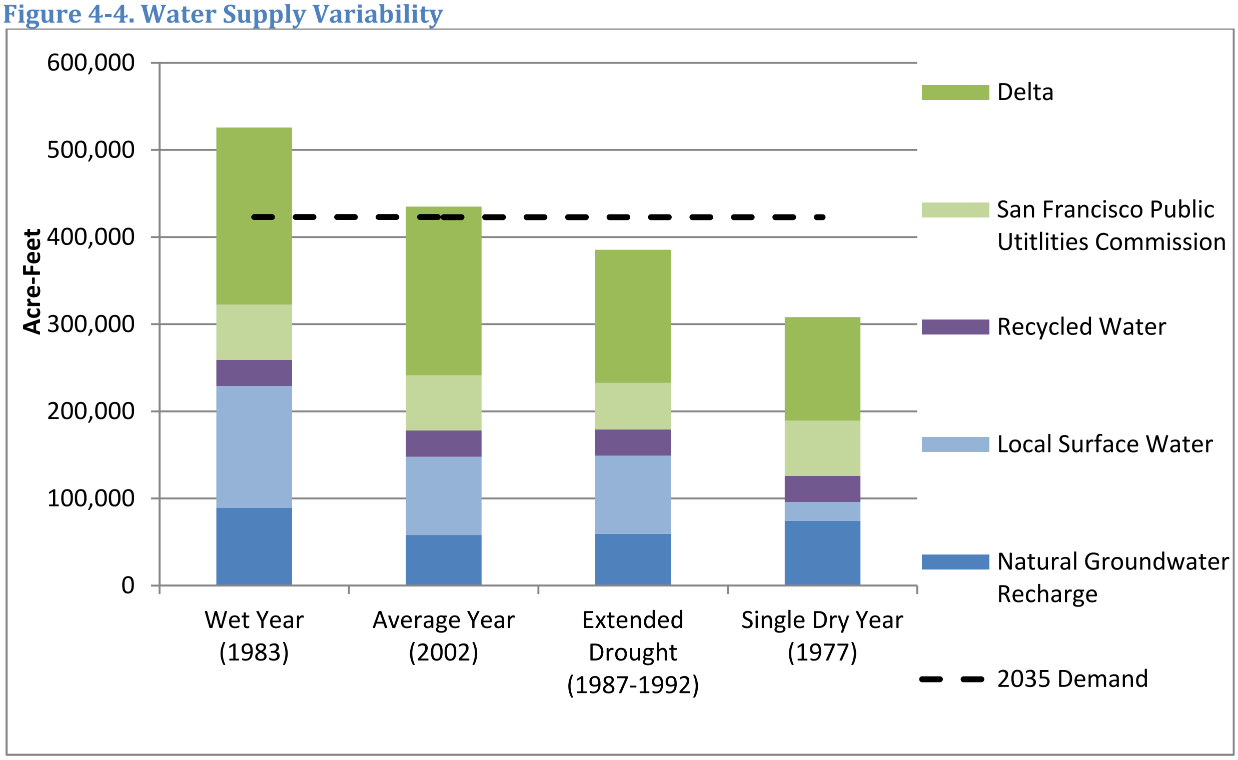
[27] See Santa Clara Valley Water District, Urban Water Management Plan, 2010, Ch. 7 for additional detail and breakdown by wastewater treatment plant. Values for 2035 are not available from all providers.

[28] Comprehensive and validated data beyond 2003 is not available.

The District's basic water supply strategy to compensate for this supply variability is to store excess wet year supplies in the groundwater basin, local reservoirs, San Luis Reservoir, or Semitropic Water Bank. These storage facilities are described in Section 4.2.5. These reserves are sufficient to meet demands during a critical dry year and the first several years of an extended drought.

Figure 4-4. Water Supply Variability



4.2.5. Storage

Because of the variable hydrology and resulting changes in supply from year to year, it is important to have sufficient storage capacity to hold the water for when it is needed. Fortunately, the county sits on top of a large storage facility – the groundwater basin. Groundwater storage is not measured by total capacity but by operational storage capacity. The District defines operational storage capacity as the volume of groundwater than can be stored in a basin as a result of District management measures. Operational storage capacity is less than total storage capacity as it accounts for the avoidance of land subsidence and high groundwater conditions, as well as available pumping capacity. The operational storage of the subbasins is provided in Table 4-6.

Table 4-6. Groundwater Subbasin Operational Storage Capacity Estimates[29] (AF)

Santa Clara Subbasin	Coyote Subbasin	Llagas Subbasin
350,000	23,000 to 33,000	150,000 to 165,000

In addition to groundwater basin storage, the District has 10 in-county surface water reservoirs. The 10 reservoirs have a combined storage capacity of 169,000 AF, though that capacity is currently restricted to about 114,000 AF due to seismic safety restrictions imposed by the Department of Water Resources, Division of Safety of Dams, and the Federal Energy Regulatory Commission at Anderson Dam. The District can store imported water in two of its larger reservoirs, Anderson and Calero. Additional details on the groundwater subbasins and reservoirs are provided in Appendix A.

Anderson is the largest local reservoir with a capacity of 90,000 AF, currently limited to about 61,000 AF due to seismic restrictions on Anderson Dam and Reservoir.

The District can also store water outside of the county. San Luis Reservoir, with a capacity of 2 Million AF, is a key component of the State and Federal water systems in California. The District brings its CVP supplies into the county from San Luis Reservoir. The District can occasionally carry over some of its CVP and SWP supplies in San Luis Reservoir when there is excess storage capacity.

The District actively stores SWP water in the Semitropic Groundwater Storage Bank. The District uses the water bank to store excess imported supplies in wet years when the county has sufficient local supplies. For example, in 2006, a very wet year, the District was able to store nearly 58,000 AF of imported water for use in future dry years. The District's total storage capacity in the Semitropic Groundwater Storage Bank is 350,000 AF.

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[29] Santa Clara Valley Water District, Groundwater Management Plan, 2012. The District is currently working to refine the estimates based on historically observed data.

The Semitropic Groundwater Storage Bank is south of Santa Clara County in California's Central Valley. The District does not physically take water from the bank when it is needed. Instead, water from the bank is used in the Semitropic water district, or pumped back into the California Aqueduct for use by other state water contractors south of the bank. The District then takes an equivalent amount of water from the Delta. Because of this arrangement, the amount the District can retrieve from the bank each year is dependent on SWP allocations. The District can retrieve up to 78,000 AF per year depending on SWP allocations, and is almost always able to take at least 31,500 AF, even in critically dry years.

4.2.6. Water Supply Outlook

The water supply outlook through 2035 was developed using the WEAP model described in Chapter 2. The model analyzed future supplies and demands in five year increments of 2015, 2020, 2025, 2030, and 2035 over the historical hydrology (1922 – 2003), taking into account increased conservation and projected increases in recycled water supplies. The WEAP model makes several basic assumptions about supplies, most of which are summarized in Chapter 2. In addition, a full list of system conditions and modeling parameters is provided in Appendix F. The WEAP model results for the water supply outlook are provided in Appendix G.

Evaluating the ability to meet future demands requires an understanding of what may happen to supplies and demands during different types of hydrologic years. The District may have plenty of supplies in a wet or normal year, but may not be able to meet demand during an extended drought period. Consequently, the District must plan for average hydrologic years and for droughts. The Water Master Plan evaluated the performance of the water supply system under the following hydrologic conditions:

- Normal Year: The average over the entire historical hydrology, which spans from 1922 through 2003 and represents a broad range of water supply conditions
- Single Dry Year: The hydrology of 1977
- Multiple Dry Years (Drought): Multiple dry year periods deplete water storage reserves in local and imported supply reservoirs and in the groundwater subbasins. The hydrology from 1987 through 1992 was used as the multiple dry year period in this analysis.

Provided the baseline system remains intact and conservation and recycling goals are met, the water supply outlook shows that the county will not experience water supply shortfalls in normal years or a single year of drought.

Additional water supplies are needed to meet demands during extended droughts. Drought year shortfalls could occur as early as 2015 and will become severe by 2035. An extended drought in 2035 could result in the need short-term water use reductions of up to almost 30 percent (or about 119,000 AFY).

The baseline water supply system will be sufficient to meet most average demands through 2035. Figure 4-3 shows anticipated average water supplies from the baseline water supply system through year 2035. Until 2035, supplies exceed demands. In 2035, there is an estimated shortfall of about 2,000 acre-feet per year (AFY) between supplies and demands.

Water supply reserves are insufficient to meet needs throughout an extended drought. Due to growing demand, water supply shortages during droughts begin to appear in 2015 and increase in magnitude and frequency over time. By 2035, without new supplies or conservation savings, shortages could occur in about 11 percent of years, and supplies would only be able to meet about 70 percent of average demand during some years. Short-term water use reductions of up to almost 30 percent (or 119,000 AFY) would be needed to avoid shortages and minimize the risk of land subsidence. Figure 4-5 shows the supplies and groundwater reserves that would be available in 2035 during a six-year drought like the one that occurred between 1987 and 1992.

Figure 4-5. 2035 Baseline Supplies and Reserves Available during an Extended Drought

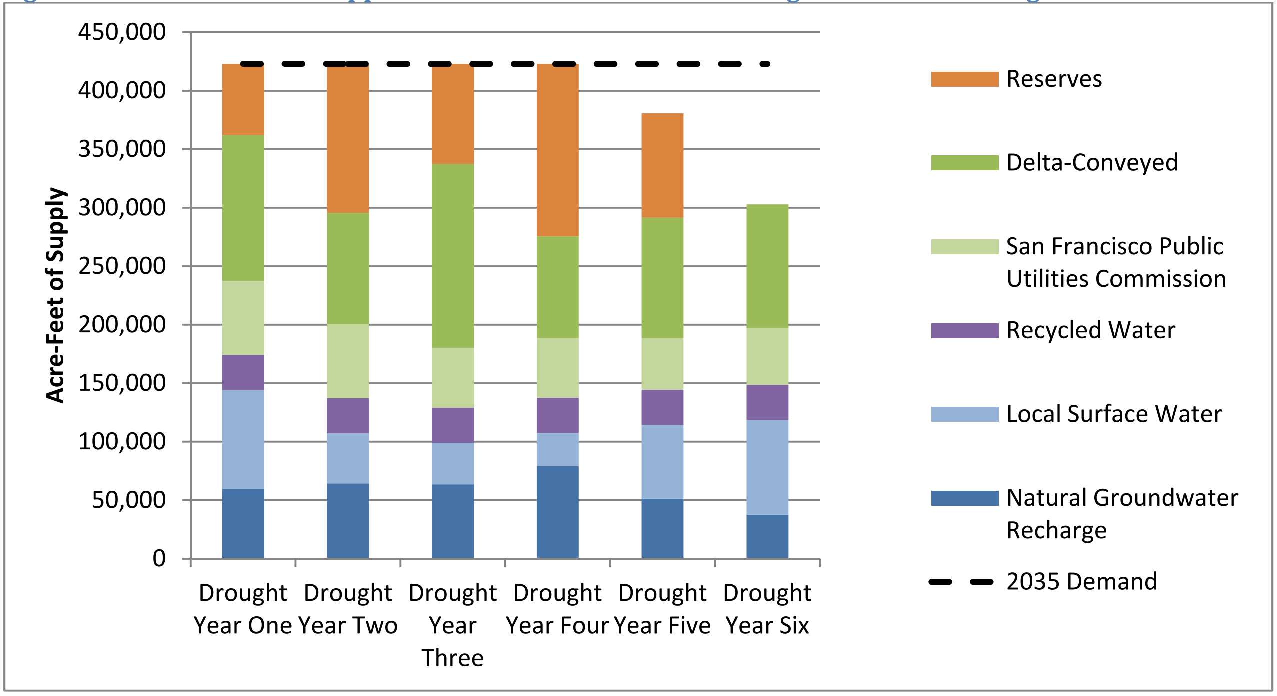
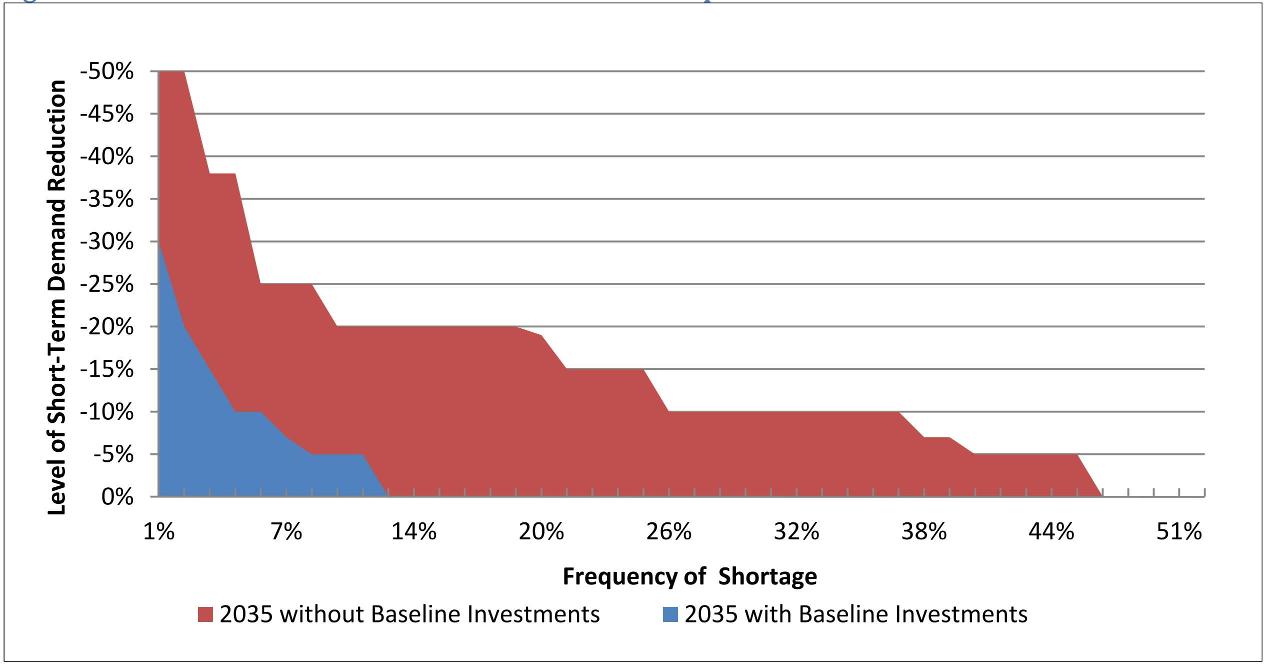


Figure 4-6 illustrates the importance of baseline investments in water supply reliability. The figure presents water supply shortages, represented by level of demand reductions during droughts, under two scenarios. The first scenario (shown in blue) reflects the assumption that existing and planned supplies (the baseline system) will be in place in 2035. The second scenario (shown in red) shows shortages that would occur if local reservoir operating capacity is not restored, recycled water use is not expanded, and conservation does not increase as planned. This second "no action" scenario does not take into account likely additional imported water reductions that would occur if investments are not made in restoring the Delta ecosystem and reliable Delta conveyance, in which case there is a risk that greater shortages could occur.

Figure 4-6. Level of Short-Term Water Use Reductions Required to meet 2035 Demands



4.3. Infrastructure Capacity Constraints

Future shortages could also occur if the District's treatment plants or raw and treated water distribution systems do not have enough capacity to deliver the supplies needed in the future. As such, the District conducted a capacity constraint analysis. In order to determine whether the current system has enough capacity to meet future demands, staff analyzed projected maximum daily demands (MDDs) on the system through 2035. For the treated water system, the MDDs were calculated using peak flow requirements in the District's treated water contracts. For the raw water system, the MDDs were based on standard peak flow requirements.

Once future maximum daily demands were determined, they were compared to current water treatment plant capacity. Subsequently, raw and treated water pipeline capacity was analyzed using the H20Net model, described in Chapter 2. The District's system was divided into three sections for analysis: Raw, East Treated, and West Treated.

For additional detail on the capacity analysis, please see the Baseline System Capacity Analysis provided in Appendix H. A summary of constraints found in each system (raw, east, west) is provided below.

East Treated Water System: The east treated water system does not have sufficient treatment plant capacity to meet MDDs through 2035. MDDs are projected to reach 153 MGD by 2035, which is 13 MGD more than current treatment capacity of 140 MGD. The east treated water pipelines, however, have sufficient capacity to carry projected future maximum daily flows through 2035.

West Treated Water System: Future demands on the west system remain relatively flat over the planning horizon. MDDs are projected to peak at 82 MGD in 2020, and then return to around 80 MGD. As such, current system capacity of approximately 83 MGD[30] would suffice for meeting projected future peak flow requirements. The District is currently expanding its Rinconada Water Treatment Plant (RWTP) from 80 MGD to 100 MGD to improve plant reliability. Though the capacity is not needed to meet future demand, the expansion does improve system reliability. The west treated water pipelines are capable of carrying the maximum flow of 100 MGD planned for RWTP, though it is not expected to operate at this level.

Raw Water System: Hydraulic modeling did not show any infrastructure constraints for the existing raw water system under future maximum daily demands for typical operations; however, as future demands increase, the District may have to run the Coyote (and possibly Vasona) pumps more often. One risk scenario was also analyzed for the raw water system. See section 4.4 for additional information.

4.4. Risks

This section provides general information on potential threats to supply reliability. These threats are not incorporated into the water supply outlook since the impact to water supply reliability is difficult to quantify. However, the District tracks and works to mitigate these risks since the associated consequences can be significant. The risks are discussed below.

Climate Change: Evidence of climate change is already being observed in California. In the last century, the California coast has seen a sea level rise of seven inches, the average April 1 snow-pack in the Sierra Nevada region has decreased in the last half century, and wildfires are becoming more frequent, longer, and more wide-spread[31]. Temperature projections for the Bay Area show a shift in the timing of spring and summer heat extremes[32], as well as an increase in the frequency and intensity of heat waves[33]. These temperature changes could result in changes in water demands. Predictions for

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[30] 83 MGD includes the existing RWTP capacity of 80 MGD plus the 2-4 MGD that will be available from the new Campbell Well Fields

[31] US Environmental Protection Agency and California Department of Water Resources. 2011. *Climate Change Handbook for Water Resources Planning*. http://www.water.ca.gov/climatechange/CCHandbook.cfm

[32] Ekstrom, Julia A., and Susanne C. Moser. 2012. *Climate Change Impacts, Vulnerabilities, and Adaptation in the San Francisco Bay Area: A Synthesis of PIER Program Reports and Other Relevant Research***.** California Energy Commission. Publication number: CEC-500-2012-071. http://www.energy.ca.gov/2012publications/CEC-500-2012-071/CEC-500-2012-071.pdf

[33] Cayan, Dan, Mary Tyree, and Sam Iacobellis (Scripps Institution of Oceanography, University of California, San Diego) 2012. *Climate Change Scenarios for the San Francisco Region.* California Energy Commission. Publication number: CEC-500-2012-042. http://www.energy.ca.gov/2012publications/CEC-500-2012-042/CEC-500-2012-042.pdf

the Southwestern US and California generally indicate that reduced quantity of surface water from local runoff is likely. Climate models suggest a drying tendency and a decline in the frequency of precipitation events, but not a clear-cut change in the intensity of precipitation events. Historic precipitation data for California's central coast region shows a trend toward decreasing rainfall during the November to January period and a trend toward increasing rainfall during the February to April period.

The District's vulnerabilities to climate change include increases in seasonal irrigation demands, a decrease in imported water supplies as a result of reduced snow pack and a shift in the timing of runoff, a decrease in local surface water supplies as result of reduced precipitation and shifts in the timing of runoff, more frequent and severe droughts, changes in surface water quality associated with changes in flows and temperature, and changes in imported water quality due to salinity intrusion in the Delta.

Potential effects of climate change on Delta-conveyed imported water supply availability have been incorporated into the water supply projections in the Water Master Plan because they have been developed for the watersheds that provide the supplies (California Department of Water Resources, 2009). However, potential climate change effects on local supplies and demands have not yet been incorporated into the Water Master Plan, because the analysis to support such forecasts have not yet been completed. The District needs to be proactive in compiling and analyzing data that could provide insights into potential local changes in runoff, water quality, and demands. The District also needs to implement a water supply strategy that will adapt well to future climate change by managing demands, providing drought-proof supplies, and increasing system flexibility in managing supplies.

Interruption or Reduction of Imported Supplies: The District's state and federal imported water supplies, outside-county water banking, and water transfer agreements all rely on conveyance of water through the Delta. An infrastructure (levee) failure in the Delta could greatly reduce the District's imported water deliveries, either in quantity or quality of water. A delta outage could result in a six to 18 month extended interruption of imported supplies. Additionally, in the last 15 years, major changes have been made to state and federal water project operations as a result of regulations to protect Delta water quality and restore endangered and threatened fish species. These regulations reduced Delta exports at certain times of the year and there is the possibility of more stringent requirements in the future.

Discontinued Central Valley Project (CVP) Municipal and Industrial (M&I) Water Shortage Policy: The District's CVP municipal and industrial (M&I) water supplies are provided pursuant to an interim administrative policy that gives priority to CVP M&I water service over CVP agricultural water service. The United States Bureau of Reclamation (Reclamation) is in the process of finalizing this policy. To mitigate the impacts and provide support for the policy, the District entered into a supplemental agreement with agricultural districts in the San Luis and Delta-Mendota Water Authority and Reclamation. If Reclamation's final M&I policy substantially changes or the supplemental agreement is not maintained, there is a risk that the District's CVP supplies could be reduced by as much as 40,000 AFY in the future.

Revenue Requirements: For the decades ahead, the highest priority work of the District's Water Utility Enterprise is to implement a program of activities to ensure that water supplies are diversified and reliable to meet current and future demands and that treated water quality standards are met. The program of operations, maintenance, and capital improvement activities that support direct and in-lieu groundwater recharge will require increased funding from groundwater production charges and other sources of revenue.

Hydrologic Uncertainty: Hydrologic uncertainties influence the projections of both local and imported water supplies and the anticipated reliability of those supplies. The water supply outlook analysis is based on the historical hydrologic sequence. If future hydrologic conditions do not mimic history, the water supply outlook may not be representative of reality.

Decreased San Francisco Public Utilities Commission (SFPUC) Supplies: The quantity of SFPUC supplies used in the county could be reduced in the future. This could result from retailers' shift in use as SFPUC supplies become more expensive than District groundwater, or from an SFPUC supply interruption to the cities of San Jose and Santa Clara, which have temporary and interruptible contracts with SFPUC. San Francisco will supply a combined annual average of about 10,000 AFY to the cities of San José and Santa Clara through 2018, subject to interruption or reduction. By December 31, 2018, San Francisco will make further decisions regarding long-term water supplies through 2030. A loss of this supply source to the county would change the water supply outlook.

Invasive Species: The introduction of quagga and zebra mussels to California has increased the likelihood of mussel infestation of District facilities in the future. Mussels are easily spread to surface water bodies by recreational boats and equipment, and can also be spread by water transfers. Some mussels can quickly reach densities that may completely cover trash racks and plug pumps and pipes. To date, no quagga or zebra mussels have been documented in the District's facilities or infrastructure.

Implementation of FAHCE: Since 1996, the District has been working to address a legal challenge to its water rights in the Stevens Creek, Guadalupe River and Coyote Creek watersheds. The water rights challenge cannot be settled until the District has received regulatory approval for habitat conservation plans (HCPs), currently under development. The District's water rights are at risk until this challenge is resolved. Even if FAHCE is implemented and water rights are secured, the commitments made in the HCPs may result in a reduction in supplies due to new operating constraints associated with maintaining fish habitat.

Water Quality: New drinking water standards, more stringent drinking water standards, or contamination could limit the use of existing sources of supply or necessitate the need for additional treatment processes.

Constraint on Delivery of State Water to RWTP: The District's Rinconada Water Treatment Plant (RWTP) typically receives a blend of State Water Project (SWP) water, federal Central Valley Project (CVP) water, and local water from Anderson or Calero reservoirs. Due to the pending expansion of RWTP, the raw water system was analyzed to determine if it can deliver 100% SWP water to the expanded RWTP (100MGD of SWP water to RWTP). The additional capacity is intended to provide redundancy and add reliability. This scenario would only apply if CVP and local sources were unavailable while the plant was operating at full capacity of 100 MGD. Demand is projected to reach a maximum of 82 MGD over the next 25 years, so it is unlikely that the plant will operate at full 100 MGD. It is also unlikely that the plant would be operating at this level at the same time CVP or local water would be unavailable. Nonetheless, this scenario was analyzed, and the analysis found that the system is capable of delivering a max of 75 – 85 MGD of state water to RWTP, depending on other raw water turnout releases being made at the same time.

4.5. Summary

In order to meet the level of service goal for a reliable supply of water in Santa Clara County, the strategy identified by this Water Master Plan addresses the following shortfalls and constraints identified in the Water Supply Outlook:

- By 2035, shortages could occur in about 11 percent of years
- By 2035, during an extended drought, short-term water use reductions of up to almost 30 percent (or 119,000 AFY) would be needed
- East treated water system peak flow treatment capacity is constrained by 13 MGD in 2035

Modeling indicates that supplies will be sufficient to meet demands through year 2035 in normal and single dry year hydrologic conditions. However, shortages begin occurring in drought years under 2015 demands. By 2035, shortages occur in about 11 percent of years. During a multiple dry year drought, shortages reach a maximum of 119,000 acre-feet per year. Also, groundwater storage in the Santa Clara Subbasin is depleted as groundwater reserves are used to meet demands. Short-term water use reductions of up to 30 percent are required to avoid depleting groundwater storage.

Risks to future supply reliability are wide-ranging and were also considered in the development of the water supply strategy. Strategies that are robust across a wide range of risks are particularly useful when uncertainties cannot be quantified by probability analysis.

In addition to addressing the predicted shortfalls and constraints, and working to manage unknown risks, the Water Master Plan strategy includes the actions needed to maintain the current "baseline" system and supplies. Without the baseline system in place in the future, the water supply outlook would deteriorate and even normal year shortages could be severe.

CHAPTER 5. Water Supply Projects and Initial Strategies

This chapter describes the potential projects evaluated in the Water Master Plan, the projects eliminated from further analysis, and how the projects were evaluated. This chapter also provides information on the initial water supply strategies that were developed for the Water Master Plan, the evaluation of these strategies, and the findings from the evaluations.

5.1 Potential Projects and Programs

District staff developed a list of 57 potential projects to help address the future water supply shortages, system constraints, and risks identified by the Water Supply Reliability Outlook in Chapter 4. New project ideas came from existing plans and studies[34], the SWOT analysis presented in Chapter 4, and input from the Stakeholder Steering Committee, the Technical Team, District management, and other District staff.

33 of the 60 projects were evaluated for inclusion in a water supply strategy. These are summarized below and listed in Table 5-1 by type of project. The list does not include water supply projects the District is implementing as part of its baseline water supply system. The remaining 24 projects that were eliminated from further consideration are described in Section 5.2.

Conservation: Conservation reduces potable water use and is a drought-proof supply. The District's baseline conservation program is aggressive, and already includes many new projects and programs. As such, only one new project was evaluated in the area of conservation. This consists of rebates to residents who install gray water systems. Gray water systems use water from bathroom sinks, showers and washing machines for irrigation.

Recycled Water (Non-potable Uses): Recycled water use offsets potable water use and is a drought-proof supply. Three potential recycled water projects were evaluated for the Llagas Subbasin and one for the Santa Clara Subbasin. The first Llagas subbasin project involves constructing a treatment plant adjacent to a sewer main to produce recycled water in Morgan Hill, along with associated distribution pipelines. The second would construct a recycled water pipeline from the South County Regional Wastewater Authority facility in Gilroy to Morgan Hill. The third would extend the existing recycled water pipeline in Gilroy west on Hecker Pass Highway. The project in the Santa Clara Subbasin would connect the South Bay Water Recycling and Sunnyvale recycled water systems.

Indirect Potable Reuse: Indirect potable reuse (IPR) is use of advanced purified recycled water to augment groundwater or surface water reservoirs. It is a drought-proof source of high-quality water for recharge. Four potential IPR locations were evaluated – Coyote Creek Ponds, Penitencia Ponds, Los Gatos Ponds, and Guadalupe Ponds. The Coyote Creek and Penitencia Ponds projects would have satellite treatment facilities near the ponds. The Los Gatos and Guadalupe Ponds projects would have centralized treatment facilities at the San Jose/Santa Clara Water Pollution Control Plant and pipelines extending to the ponds.

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[34] Existing District studies included the South County Recycled Water Master Plan, the San Luis Reservoir Low Point Improvement Project, the Infrastructure Reliability Program, the Three Creeks and Valley Habitat Conservation Plans, the Flood Protection and Stream Stewardship Master Plan, the Integrated Water Resources Plan, and the Capital Improvement Plan. Regional studies included the Los Vaqueros Expansion Project, the Bay Area Regional Desalination Project, and local cities' recycled water master plans.

Groundwater Recharge Ponds: Groundwater recharge increases the ability to capture wet year water for use in dry years. Four potential new groundwater recharge pond systems were evaluated. Two systems are in the Santa Clara Subbasin - one along Saratoga Creek and one in the Guadalupe Watershed. The other two systems are in the Llagas Groundwater System – Upper Madrone Channel and Butterfield Channel. In addition, a project to repair or replace the diversion structure for the Church Avenue Ponds in the Llagas Subbasin was evaluated.

Imported Water: Imported water projects involve o water from sources outside the county. Three potential new imported water opportunities were evaluated. Imported water options and exchanges provide dry year supplies. Dry year option agreements would secure the District's ability to call on supplemental water supplies during droughts and other shortages. Exchange contracts involve the District providing water to a partner during wet years in exchange for a lesser amount of water in dry years. Imported water contract purchases are buying another State or Federal water contractor's entitlements. New contract water would provide water in all years, but would be subject to state or federal allocations in dry years.

Desalination: Desalination of brackish or sea water provides a drought-proof supply. One opportunity in the area of desalination was evaluated. Regional desalination would involve partnering with other agencies in the construction of a desalination plant and receiving water during droughts.

Reoperations: Reoperations projects help the District optimize existing water supplies. Several different types of reoperations projects and programs were evaluated. Reservoir pipeline projects would transfer water from reservoirs (Uvas, Lexington, or Stevens Creek) to groundwater storage facilities or drinking water treatment plants during high-flow periods. This type of project increases the District's use of local surface water supplies. Diverting water to San Jose Water Company's Montevina Water Treatment Plant above Lexington Reservoir would also increase the use of local water supplies. A west-side intertie with the San Francisco Public Utilities Commission system would extend the District's treated water system, adding flexibility to water supply operations, and redundancy to the treated water system. Imported water reoperations would involve long-term partnerships to share the District's existing imported water supplies when Semitropic Groundwater Bank is nearly full and the District's water supply needs are otherwise met. This would provide revenue to the District and increase storage capacity for wet year water supplies.

Reservoir Expansion: Reservoir expansion increases the District's storage capacity, provides additional sources of water for drinking water treatment plants, and helps manage increased runoff intensity that could result from climate change. Staff evaluated four potential reservoir expansion projects – Anderson, Calero, Pacheco, and Uvas.

Table 5-1. Potential Future Supply Projects and Programs

Category	Projects
Conservation	Gray Water System Rebates
Recycled Water	Morgan Hill Treatment
	Pipeline to Morgan Hill
	Hecker Pass Irrigation
	Recycled Water Regional Connector
Indirect Potable Reuse	Coyote Creek Ponds
	Penitencia Ponds
	Los Gatos Ponds
	Guadalupe Ponds
Groundwater Recharge	Guadalupe Watershed
	Saratoga Creek
	Butterfield Channel
	Upper Madrone Channel
	Church Avenue Diversion Repair
Imported Water	Dry Year Option Agreements
	Exchange Contracts
	Imported Water Contract Purchase
Desalination	Regional Desalination Project
Reoperations	Uvas Reservoir Pipeline
	Lexington Reservoir Pipeline
	Lexington Reservoir Exchange Agreement
	Stevens Creek Reservoir Pipeline
	Westside Intertie with San Francisco Public Utilities Commission
	Imported Water Reoperations
Reservoir Expansion	Anderson Reservoir Expansion
	Calero Reservoir Expansion
	Pacheco Reservoir Expansion
	Uvas Reservoir Expansion
Treated Water	South County Water Treatment Plant
	West Side Package Water Treatment Plants
	Santa Teresa Water Treatment Plant Expansion
	Revise Treated Water Contracts
	Additional Wells

Treated Water: Five potential treated water projects were evaluated. A South County Water Treatment Plant would add treated water to the Llagas Subbasin water supply system. This could help with conjunctive use and improve the reliability of District Central Valley Project deliveries to the Llagas

Subbasin[35]. West-side package plants would provide redundancy to the west-side treated water system and add flexibility to District operations. Santa Teresa Water Treatment Plant Expansion and additional wells would help meet peak flow requirements of the District's treated water contracts. Alternatively, the District could revise peak flow requirements in the treated water contracts.

5.2 Projects and Programs Not Evaluated in the Water Master Plan

Many projects were quickly eliminated from further consideration because of an apparent "fatal flaw". The reasons for removal fall into the following categories:

Technical or Environmental Infeasibility: Many projects were removed due to a technical or environmental issue. For example, an expansion of the Penitencia Water Treatment Plant was found to be technically infeasible due to its location on an active landslide and because previous plant improvements did not account for plant expansion.

Does not Provide New Supply/Capacity: Projects that did not provide any new yield or resolve capacity constraints were eliminated. Some projects were found to provide added system reliability or reduce risk, but did not provide new supply or capacity. Projects to improve system reliability, reduce risk, and rehabilitate assets are addressed by other District programs and were therefore not evaluated as new supply options.

High Cost/Low Benefit: Some projects had a high cost for very little to no benefit, or had a higher cost than another project that achieved the same benefits. One example of this is a pipeline connecting Uvas Reservoir to the Cross Valley Pipeline. A pipeline connecting the reservoir to the Santa Clara Conduit has the same or better benefits, and costs much less.

Project or Opportunity Not Defined: Several general projects were suggested, but upon further research, could not be adequately defined. One example of this is additional groundwater banking programs. While an additional banking program is a good idea, staff could not identify any additional banking programs in which the District could participate.

Some projects of interest that were eliminated and the reasons why they were eliminated are shown in Table 5-2. A full list of the eliminated projects is provided in Appendix I. Some of the projects that were removed from the project list may be considered in future master plan updates or other District planning efforts.

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[35] The District's current treated water contracts give first priority to treatment plant deliveries. New treated water contracts for a new treatment plant would give similar priority to customers in the Llagas Subbasin.

Table 5-2. Selected Eliminated Projects

Project	Reason Eliminated
Rainwater Harvesting	High Cost/Low Benefit: Though not cost effective at this time, the District will continue to evaluate and monitor advances in these types of conservation programs.
Storm water Capture and Re-use	Project or Opportunity Not Defined: Though not defined at this time, the District will continue to look for opportunities for storm water recharge re-use projects. One potential opportunity exists if a Canoas Creek flood protection project is feasible.
Local Desalination	Technical or Environmental Infeasibility: Due to environmental constraints south of the Dumbarton Bridge, environmental permitting would be extremely difficult.
Bay Delta Conservation Plan (BDCP) and other Delta Improvements	Does not Provide New Supply/Capacity: The project is part of the baseline assumptions for the Water Master Plan, and does not provide any new supply yield.
Los Vaqueros Expansion	Project or Opportunity Not Defined: Contra Costa Water District (CCWD) does not have specific partnering information available at this time; however, the Los Vaqueros Expansion could provide an opportunity for a Dry Year Option agreement, which is included in the Water Master Plan Recommended Strategy. Though not defined at this time, the District will continue to evaluate and monitor opportunities for participation in the program.
San Luis Reservoir Low Point Project Combination Alternative	Does not Provide New Supply/Capacity: This project maintains reliability of the District's existing CVP supplies, but does not increase yield.
Remove Almaden or Guadalupe Dam	Does not Provide New Supply/Capacity: Removing a dam decreases local water supply. There is potential benefit to the environment but costs are very high.
Direct Potable Reuse	Technical or Environmental Infeasibility: Current regulations do not allow transmission of advanced treated recycled water directly to raw water pipelines. Though not allowed at this time, the District will continue to monitor for advancements in regulations.

5.3 Project Development and Evaluation

Information was gathered on each of the projects listed in Section 5.1. The type of information that was compiled for each project is listed below. This information was summarized on project information sheets, which are provided in Appendix J.

- Description: A brief description of the project including new or altered infrastructure, project location, and how the project would operate

- Additional Water Supply Yield: The additional yield expected from the project
- Benefits: An assessment of the planning objectives (Chapter 3) achieved by the project
- Project Life: The expected life of the project's new supplies or infrastructure
- Costs: Total capital costs and lifetime operations and maintenance costs
- Implementation Issues and Other Costs: A brief description of any non-monetary costs or implementation issues such as environmental costs, legal issues, risks, etc.
- Schedule: Project duration and any required precursors such as legal settlements or technical studies

Costs and benefits were analyzed for each project. First, project benefits were evaluated by determining which objectives and sub-objectives were met by the projects. The evaluation consisted of a yes/no assessment. Some sub-objectives were more appropriate for evaluation at the portfolio level and were not applied to individual projects.

Quantitative amounts of costs and yields were provided for the projects. Staff estimated the number of acre-feet expected per year for each project. Subsequent modeling analyses provided better yield estimates for some projects and the estimates were modified accordingly. Combinations of projects result in better (or worse) yields than stand-alone projects. Because of this, it is difficult to determine yields for individual projects. Staff estimated capital and annual operations and maintenance costs for each project, and then developed present value costs to allow for comparison between projects. Appendix J presents the results of the initial cost and benefit evaluation. The results are summarized below in

Table 5-3.

Table 5-3. Project Benefits and Costs Summary

Category	Estimated Average Project Yields (AFY)	Estimated Project Present Value Costs ($ millions)
Conservation	300	3
Recycled Water	240 – 700	2 to 30
Indirect Potable Reuse	3,000 – 20,000	66 to 339
Groundwater Recharge	2,000 – 8,000	5 to 14
Imported Water	Up to 30,000	3 to 61
Regional Desalination	2,000	72
Reoperations	Up to 3,000	-74[36] to 205
Reservoir Expansion	Up to 15,000	122 to 642
Treated Water	Not applicable	1 to 76

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[36] Imported water reoperations generate revenue.

5.4 Stakeholder Input on Potential Projects and Programs

The Stakeholder Review Committee, Board's Advisory Committees, and water retailers provided input on the potential projects and programs. Their comments are summarized below.

- Emphasize water conservation.
- Promote gray water reuse.
- Increase public education on water conservation techniques for landscape.
- Recycled water projects should be evaluated for their return on investment.
- Evaluate regional recycled water projects.
- Work with land-use agencies on requirements for conservation and recycling in new developments.
- Consider indirect potable reuse projects with other recycled water producers.
- Be aware of pharmaceuticals in recycled water.
- Consider expanding drug drop-off programs to reduce pharmaceuticals in recycled water.
- Consider removing dams.
- Be aware of concerns about local reservoir expansion, including expanding inundation areas and impacts on fisheries and the environment.
- Recognize that a larger Anderson Dam could be more subject to a terrorist attack.
- Acknowledge the more severe impacts on the environment from a Uvas Reservoir expansion project
- Consider the benefits of reservoir expansion.
- Investigate regional projects such as Los Vaqueros Reservoir Expansion.
- Address concerns about the reliability of imported supplies from the Delta.
- Avoid new imported water supplies.
- Develop projects to address groundwater quality issues southern Santa Clara County.

5.5 Initial Water Supply Strategy Development

Because it is infeasible to analyze every possible combination of projects, the Water Master Plan process combined various projects into water supply strategies. The purpose of the initial strategies was to identify which types of projects consistently perform well, which projects complement each other, and to provide information to help develop preferred strategies. The initial strategies were not intended to be the best possible combinations of projects and were not expected to be carried forward as preferred strategies. Also, the initial water supply strategies have a planning objective focus.

To develop the initial strategies, project evaluation results and stakeholder input described in Section 5.3 were reviewed. The projects that achieved the same objective or sub-objective were combined into water supply strategies. The strategies were built to include enough projects to meet the initial water reliability target to avoid calls for short-term water use reductions greater than 20 percent[37].

A total of eight initial water supply strategies were developed. The strategies are summarized in Table 5-4. Each strategy includes projects that provide benefits in the Santa Clara Subbasin and the Llagas Subbasin. Each strategy includes projects designed to help meet projected peak flow requirements on the east side of the treated water system. Each project was included in at least one strategy. Each strategy includes maintaining the baseline system, as described in the assumptions in Section 2.4.

5.6 Initial Strategy Evaluation

The eight strategies were evaluated to determine how well they would meet the planning objectives. The WEAP model evaluated the performance of each strategy during an extended drought. The modeling results provided an estimate of the magnitude and frequency of short-term water use reductions that would be called for using the District's Water Shortage Contingency Plan. Table 5-5 summarizes short-term water use reductions and costs associated with the baseline (no improvements) and with each of the eight initial water supply strategies[38]. The three strategies that provided the greatest reliability were Develop Local Supplies, Maximize System Flexibility, and Minimize Costs. These water supply strategies included the most dry year water supply.

Next, all strategies were rated on their ability to achieve planning objectives. Two planning objectives were rated based on calculated values. WEAP modeling results were used to rate the Ensure Supply Reliability Objective, and cost estimates were used to rate the Minimize Costs objective. The remaining six planning objectives were rated based on professional judgment of District staff. Figure 5-1 illustrates the initial water supply strategy scoring results. Strategy 1 – Develop Local Supplies and Strategy 7 – Protect the Natural Environment both scored the highest, 74 out of 100. Both strategies contained indirect potable reuse, groundwater recharge, and reoperations. Neither included imported water, regional desalination, or reservoir expansion.

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[37] The District's Water Shortage Contingency Plan, a part of the District's Board-adopted 2010 UWMP, is designed to avoid having to call for more than a 20 percent reduction in water use in any given year of an extended drought. Staff used this target to evaluate the initial water supply strategies. This reduction in water use is a short-term reduction and is in addition to long-term water conservation savings. In May 2012, the District Board of Directors concurred with a level of service goal to develop water supplies designed to meet at least 100 percent of average annual water demand identified in the District's UWMP during non-drought years and at least 90 percent of average annual water demand in drought years.

[38] The initial water supply strategies were evaluated using an older version of WEAP that did not include some baseline supplies, such as the restored capacity at reservoirs once operating restrictions have been removed. As a result, water supply shortages associated with the initial water supplies strategies shown here are greater than those associated with the water supply outlook and the preferred water supply strategies presented later in this chapter.

Table 5-4. Initial Water Supply Strategies

Water Supply Strategy	Description	Project Types[39]
Local Supply Development (Planning Sub-Objective 1.2)	Develops local water supply sources	Indirect Potable Reuse Groundwater Recharge Reoperations Treated Water
Maximize System Flexibility (Planning Sub-Objective 1.3)	Helps manage outages, droughts, and future climate change impacts; makes better use of runoff during high stream flow periods	Conservation Recycled Water Indirect Potable Reuse Groundwater Recharge Regional Desalination Reoperations Reservoir Expansion
Improve Groundwater Quality (Planning Sub-Objective 2.1)	Increases recharge capacity and provides additional supply of high quality water for recharge	Groundwater Recharge Reoperations Reservoir Expansion
Maximize Treated Water Quality (Planning Sub-Objectives 2.2 and 2.3)	Provides water for blending, additional treatment plant capacity, and additional high-quality source water	Groundwater Recharge Regional Desalination Reservoir Expansion Treated Water
Minimize Costs (Planning Objective 3)	Focuses on lower costs projects	Conservation Recycled Water Groundwater Recharge Imported Water Reoperations
Maximize Implementation Potential (Planning Objective 4)	Focuses on projects that have a high level of District influence or that the District has successfully implemented in the past	Groundwater Recharge Reoperations Imported Water
Protect the Natural Environment (Planning Objective 6)	Minimizes impacts on the environment	Conservation Indirect Potable Reuse Groundwater Recharge Reoperations
Provide Community Benefits (Planning Objective 7)	Provides flood protection and recreation benefits and expands recycled water to new service areas	Recycled Water Groundwater Recharge Reservoir Expansion

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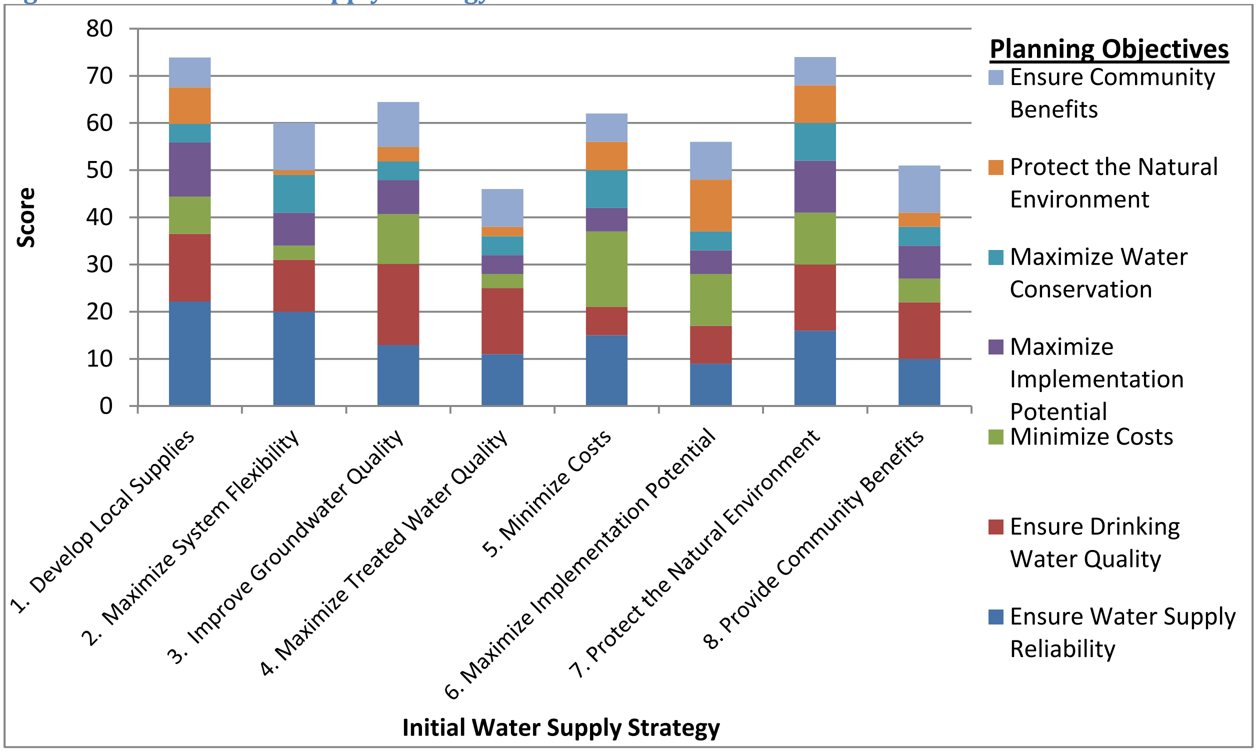
[39] Though not identified in the list, all strategies include projects to secure the baseline, and a project to address peak flow capacity constraints in the east side treated water system.

Table 5-5. Initial Strategy Reliability and Costs

Water Supply Strategy	Maximum Short-term Water Use Reduction[3]	Frequency of Demand Reduction[3]	Planning Level Estimated Present Value Cost
1. Develop Local Supplies	-20%	5%	$400 Million
2. Maximize System Flexibility	-20%	10%	$550 Million
3. Improve Groundwater Quality	-25%	10%	$300 Million
4. Maximize Treated Water Quality	-50%	13%	$800 Million
5. Minimize Costs	-20%	9%	$50 Million
6. Maximize Implementation Potential	-38%	13%	$350 Million
7. Protect the Natural Environment	-25%	11%	$300 Million
8. Provide Community Benefits	-38%	13%	$550 Million
Baseline	-50%	13%	Not Applicable

Figure 5-1. Initial Water Supply Strategy Scores



5.7 Strategy Optimization

Following the initial strategy evaluation, about 50 iterations of strategies were modeled using WEAP. The strategies were reconfigured to better understand the trade-offs of different projects in terms water supply benefits. The water supply benefits provided by some individual projects were also evaluated. The results for the most relevant model runs are summarized in Table 5-6. The remaining model runs contained subsets of the projects shown below, and were not as informative as those shown in the table.

Table 5-6. WEAP Modeling Results Summary

Model Run Number[40]	Project(s)	Maximum Short-Term Water Use Reduction
A20	Indirect Potable Reuse – Los Gatos, Coyote Creek, and Penitencia Ponds Anderson Reservoir Expansion Uvas and Stevens Creek Reservoir Pipelines Regional Desalination Dry Year Options up to 20,000 AFY	0%
B06	Indirect Potable Reuse – Los Gatos Ponds Groundwater Recharge – Saratoga Creek Lexington Reservoir Pipeline Dry Year Option up to 30,000 AFY	-7%
A16	Indirect Potable Reuse – Los Gatos, Coyote Creek, and Penitencia Ponds Groundwater Recharge – Saratoga Creek Lexington Reservoir Pipeline Imported Water Exchange Contract Dry Year Option up to 7,500 AFY	-10%
C04	Uvas Reservoir Expansion Uvas Reservoir Pipeline Dry Year Option up to 30,000 AFY	-15%
C07	Indirect Potable Reuse – Los Gatos Ponds and Coyote Creek Groundwater Recharge – Saratoga Creek Lexington Reservoir Pipeline Regional Desalination	-15%
B03	Indirect Potable Reuse – Los Gatos Ponds	-20%
B07	Dry Year Options up to 30,000 AFY	-20%
C05	Calero Reservoir Expansion Uvas Reservoir Pipeline Dry Year Option up to 30,000 AFY	-20%
C06	Indirect Potable Reuse – Los Gatos and Coyote Creek Ponds Lexington Reservoir Exchange Agreement Stevens Creek Pipeline	-20%
C09	Indirect Potable Reuse – Los Gatos and Coyote Creek Ponds Groundwater Recharge – Saratoga Creek Lexington Reservoir Pipeline	-20%
B08	Uvas Reservoir Pipeline	-25%
B16	Anderson Reservoir Expansion	-38%
B01	Indirect Potable Reuse - Coyote Creek	-50%
B10	Stevens Creek Reservoir Pipeline	-50%
B14	Calero Reservoir Expansion	-50%

Some key findings from the WEAP modeling evaluations are discussed below.

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[40] To see detailed WEAP results for the specific project combination shown, look up the model run number in the WEAP modeling output files in the project files.

Reservoir Expansion: Reservoir expansion provides little improvement in the ability to meet water demands. Existing reservoirs are depleted to their emergency pools by the third year of the way through a drought, if not sooner, due to the need for water for recharge. Adding reservoir storage extends the time it takes to drain the reservoirs by about a year, but they are still drained.

Dry Year Options: Dry year surface water options are needed to minimize or avoid treated water demand shortfalls. Strategies without imported water options do not meet both countywide demands and treated water demands. Strategies that include indirect potable reuse meet countywide demands by providing groundwater recharge in a drought, but do not provide water that can be used at the treatment plants. Also, dry year options can fill gaps if shortages occur before projects come on line, and can supplement local supplies in the most severe drought conditions. The District already purchases supplemental imported water on an as needed basis.

Wet Year Supplies: Raw water pipelines, especially the Uvas Reservoir Pipeline, help improve water supply reliability. By utilizing local water during wet periods, the District can reduce its use of imported water supplies during those times and put the water in Semitropic Groundwater Bank. A similar benefit is observed with the purchase of additional imported water contract supplies. The benefit of these projects diminishes when combined with indirect potable reuse projects since that project provides more than enough wet year yield.

Semitropic Groundwater Bank: Semitropic Groundwater Bank is a valuable asset during droughts. If there is sufficient storage in Semitropic going into a drought, the District can avoid critical and emergency water supply shortages. Projects that provide wet year supplies help maintain Semitropic storage levels.

Llagas Subbasin and Treated Water Projects: The Llagas Subbasin projects and treated water projects did not provide noticeable improvements in water supply reliability. Therefore, these projects were not included in the preferred water supply strategies that are discussed below in Section 5.8.

5.8 Stakeholder Input on Water Supply Strategies

The Stakeholder Review Committee's input on the water supply strategies is summarized below.

Reliability: A high level of water supply reliability is important to the community and economy. The Committee felt the District should avoid strategies that include mandatory water use restrictions during droughts because restrictions create hardship, people want a choice in their water use, and revenues are reduced. They also felt the District should evaluate a water supply strategy that would provide 100 percent water supply reliability, and conduct a cost-of-shortage analysis so the costs of different levels of reliability can be compared.

Indirect Potable Reuse: The District should focus on strategies that rely on indirect potable reuse because it develops local supplies, builds on existing infrastructure and institutional agreements, and, according to one stakeholder, is the "most sustainable." Further, indirect potable reuse is technically feasible, whereas reservoir expansion has challenges that make it impractical, and Delta supplies are unreliable. The benefits of indirect potable reuse outweigh the risks. The District should also consider a water supply strategy with 50,000 AFY of indirect potable reuse, or the maximum we could produce consistent with our long-term recycled water agreements with South Bay Water Recycling.

Delta Supplies: The District should avoid new Delta supplies until a long-term Delta solution has been implemented.

Groundwater: The District should maximize groundwater storage to respond to SFPUC operations, potential changes in SFPUC contracts, and other resource management issues.

Implementation: The committee members had the following comments on water supply strategy implementation:

- Educate the community on recycled water quality and it its uses.
- Work with community groups on recycled water strategic communication plan implementation.
- Get out into the neighborhoods to discuss gray water and potable reuse.
- Include the monitoring of San Francisco Public Utilities Commission supplies in the implementation plan.
- Add potential participation in a future Los Vaqueros Reservoir expansion to the implementation plan.
- Work toward implementing direct potable reuse and specify how the District will do so in the implementation plan.
- Revise old policies about maintaining freshwater flows to the Bay in light of potable reuse projects, and benefits of reducing freshwater flows to the Bay for habitat protection.
- Make a decision regarding how the District will use its 5 MGD capacity in the Silver Creek (recycled water) Pipeline so others can plan accordingly.
- Keep the potential for a future expansion of Anderson Reservoir on the table.
- Provide more details on the strategy to meet the long-term conservation program savings target of 98,500 AFY by 2030.
- Include discussing "take or pay" provisions in the treated water contract with retailers.
- Be clear on the difference between systemic long-term conservation savings and situational short-term demand reductions.

5.9 Preferred Water Supply Strategies

The strategy evaluations and stakeholder comments provided guidance in selecting the final project combinations for the preferred water supply strategies. The three preferred water supply strategies were:

- Strategy 1 – Develop Local Supplies,
- Strategy 2 – Maximize System Flexibility, and
- Strategy 5 – Minimize Costs.

A key message from the Stakeholder Steering Committee was that the stakeholders wanted a high level of reliability and did not want to be subjected to short-term water use reductions in the future. Because of this message, an additional water supply strategy – Ensure Sustainability – was developed to provide a higher level of reliability, and was included as a preferred strategy for more detailed analysis.

Chapter 6 provides detailed information on the project components and evaluation of these strategies. The remaining strategies were no longer considered because they provided lower levels of water supply reliability and the key benefits and/or projects were otherwise captured in Strategies 1, 2, and 5, as discussed below.

3. Improve Groundwater Quality: The key benefits of and projects in this strategy are captured in Strategy 1-Develop Local Supplies and Strategy 2-Maximize System Flexibility.

4. Maximize Treated Water Quality: This strategy provides little improvement in water supply reliability and is relatively expensive. Some of the benefits and projects associated with this strategy are captured in Strategy 2-Maximize System Flexibility.

6. Maximize Implementation Potential: This strategy provides little improvement in water supply reliability. Most of the projects in the strategy are captured in Strategy 1-Develop Local Supplies, Strategy 2-Maximize System Flexibility, and Strategy 5-Minimize Costs.

7. Protect the Natural Environment: The key benefits and projects associated with this strategy are captured in Strategy 1-Develop Local Supplies.

8. Provide Community Benefits: This strategy provides little improvement in water supply reliability. Most of the projects in the strategy are captured in Strategy 1-Develop Local Supplies and Strategy 2-Maximize System Flexibility.

5.10 Summary

About 60 potential new projects in the categories of conservation, recycled water, indirect potable reuse, groundwater recharge, imported water, regional desalination, reoperations, reservoir expansion, and treated water were evaluated to help meet the needs identified in the water supply outlook. Some of the projects were quickly eliminated and the remaining were further evaluated to determine their benefits and costs.

Eight initial water supply strategies and about 50 additional iterations of the strategies were developed and evaluated. The initial strategies were evaluated for their ability to meet planning objectives. All strategy iterations were evaluated for costs and ability to meet water supply reliability goals. The ability to meet water supply reliability goals was measured using the WEAP model. Taking into account information gathered from strategy evaluations and stakeholder input, the four preferred water supply strategies were identified:

- Develop Local Supplies
- Maximize System Flexibility
- Minimize Costs
- Ensure Sustainability

Chapter 6 presents the analysis of the preferred water supply strategies.

CHAPTER 6. Analysis of Preferred Water Supply Strategies

This chapter first describes the four preferred water supply strategies. The chapter then describes how the preferred strategies were evaluated using WEAP modeling, planning objective ratings, stakeholder input, and a benefit-cost analysis. These evaluations were used to identify the recommended strategy. Finally, this chapter includes additional analysis on the recommended strategy including system modeling and expected rate impacts of the recommended strategy.

6.1. Preferred Water Supply Strategy Description

The four preferred water supply strategies are described below and summarized in Table 6-1 on page 59. A critical component included in all strategies is maintaining the baseline water supply system. The assumptions in Section 2.4 provide a description of actions needed to maintain the baseline.

Develop Local Supplies: This water supply strategy includes developing 20,000 acre-feet per year of indirect potable reuse (or groundwater recharge with advanced treated recycled water) at the Los Gatos Ponds, connecting Lexington Reservoir to the raw water system at Vasona Pump Station, constructing groundwater recharge ponds along Saratoga Creek, implementing a gray water rebate program, and constructing a recycled water regional connector.

This is the only strategy that relies solely on local supply development. This strategy provides groundwater quality benefits because advanced treatment removes nearly all the salts from the water that is used for recharge, which over time, is expected to improve groundwater quality. This strategy provides environmental benefits by helping to maintain reservoir supplies that are used to meet flow and temperature needs for fish in local creeks, and reduces the amount of freshwater that is discharged to South San Francisco Bay from the wastewater treatment plants.

The indirect potable reuse component of this strategy faces significant public acceptance issues, though the strategy anticipates the District’s recycled water outreach strategy will address them. The permitting process for indirect potable re-use is complex.

This strategy would need to be amended with additional dry year water supplies to meet the District’s long-term water supply reliability level of service goal. The strategy’s estimated present value cost, which includes capital and operations and maintenance costs, is approximately $375 Million.

Maximize System Flexibility: This strategy includes expanding Calero Reservoir, constructing pipelines connecting Stevens Creek and Uvas Reservoirs to the raw water system, implementing an exchange agreement with San Jose Water Company for Lexington Reservoir supplies, implementing a gray water rebate program, constructing a recycled water regional connector, and securing imported water dry year options of up to 30,000 acre-feet per year.

The key benefit of this strategy is that it provides additional storage to mitigate short- and long-term risks. Short-term risks include Delta outages or water quality problems such as algae blooms in San Luis Reservoir. In the long-term, additional surface storage is a good adaptation strategy for responding to the likely increase in the intensity of rainfall events resulting from climate change, and can provide recreation benefits. Dry year options are included to meet demands during dry years.

There are significant permitting issues with this option, including State Water Resources Control Board, and Department of Fish and Game.

The strategy achieves the District's long-term water supply reliability level of service goal. The estimated present value cost of this strategy is approximately $250 million.

Minimize Costs: This water supply strategy includes additional imported water agreements that would provide approximately 30,000 acre-feet per year of water during critically dry years, implementing a gray water rebate program, and constructing a recycled water regional connector. It relies primarily on imported water supplies to meet future needs.

The key benefit of this strategy is that it has a relatively low present value cost. In addition, this strategy focuses on developing supplies for meeting water supply needs during droughts, when they are most needed.

The key risk associated with this strategy is that almost the entire supply could be disrupted if there was an outage in the San Francisco Bay Delta. It is inconsistent with State policy to reduce reliance on imported water supplies for meeting future needs.

This strategy, as presented, would need to be amended with additional dry year water supplies to meet the District long-term reliability level of service goal. The estimated present value cost is approximately $75 Million.

Ensure Sustainability: This water supply strategy builds on the Develop Local Supplies strategy. It includes all of the projects in the Develop Local Supplies strategy (20,000 acre-feet of indirect potable reuse at Los Gatos Ponds, connecting Lexington Reservoir to the raw water system, groundwater recharge ponds along Saratoga Creek, a gray water rebate program, and a recycled water regional connector). It includes two additional components, re-operating the District's imported water program, and developing up to 12,000 acre-feet per year of dry year options.

Because it builds on the Develop Local Supplies strategy, this strategy has the same local supply, groundwater quality and environmental benefits, but also the same public acceptance and permitting challenges.

Table 6-1. Preferred Water Supply Strategies

Water Supply Strategy	Key Projects Included	Planning Level Estimated Present Value Cost[41]	Benefits	Risks/Challenges
Develop Local Supplies	• Indirect Potable Reuse – Los Gatos Ponds • Groundwater Recharge – Saratoga Creek • Lexington Reservoir Pipeline • Gray Water Rebate Program • Recycled Water Regional Connector	$375 Million	• Develops about 20,000 AFY of local, all-weather supply • Improves groundwater quality by using higher quality water for recharge • Maximizes District influence over supplies and operations since the water would be available for use regardless of weather • Helps maintain water supplies in reservoirs that can be used to meet fishery requirements for cold water flows • Reduces fresh water flows to saltwater habitat in southern San Francisco Bay • Builds on existing agreements	• Public and regulatory acceptance is critical to successful implementation • Potential for stranded assets • Increases the energy intensity of the District's water supply portfolio
Maximize System Flexibility	• Calero Reservoir Expansion • Lexington Reservoir Exchange Agreement • Stevens Creek Reservoir Pipeline • Uvas Reservoir Pipeline • Dry Year Options up to 30,000 AFY Gray Water System Rebates • Regional Recycled Water Connector	$250 Million	• Mitigates short-term and long-term risks by increasing storage and adding redundancy and interconnectedness to the system • Potential increases in recreation benefits	• Little new local supply during droughts • Requires supplemental dry year supplies • Public acceptance and permitting • Environmental impacts, including habitat and transportation infrastructure
Minimize Costs	• Dry Year Options up to 30,000 AFY • Gray Water System Rebates • Recycled Water Regional Connector	$75 Million	• Develops 30,000 acre-feet per year (AFY) of drought supply • Avoids stranded assets	• Inconsistent with State policy to reduce reliance on the Delta • No local supply development to • Need to resolve Delta issues • Outages in the Delta could disrupt supplies
Recommended Strategy - Ensure Sustainability	• Indirect Potable Reuse – Los Gatos Ponds • Groundwater Recharge – Saratoga Creek • Lexington Reservoir Pipeline • Gray Water Rebate Program • Imported Water Reoperations • Dry Year Options up to 12,000 AFY	$300 Million	• Develops about 20,000 AFY of local, all-weather supply • Improves groundwater quality by using higher quality water for recharge • Maximizes District influence over supplies and operations since the water would be available for use regardless of weather • Helps maintain water supplies in reservoirs that can be used to meet fishery requirements for cold water flows • Reduces discharges to southern San Francisco Bay • Builds on existing agreements • Maximizes the economic value of existing assets to offset other costs	• Public and regulatory acceptance is critical to successful implementation • Potential for stranded assets • Increases the energy intensity of the District's water supply portfolio

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[41] These are preliminary costs and were updated for the final economic analysis described in section 6.5.

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This strategy includes imported water dry year option agreements to meet the District's long-term reliability level of service goal. Consistent with District current operations, this strategy also includes imported water reoperations to maximize supply availability in dry years while minimizing unused water in wet years.

The strategy achieves the District's long-term water supply reliability level of service goal. The estimated present value cost is $300 Million.

6.2. WEAP Analysis

The WEAP modeling results provided information to help determine the highest performing of the four preferred strategies. WEAP modeling results show the maximum level of short-term water use reductions that would occur with each of the preferred strategies in place. This value is used to show which water supply strategy provides the most future reliability. Table 6-2 provides the modeling results.

Table 6-2. WEAP Modeling Results for Preferred Strategies

Strategy	Maximum Level of Short-Term Water Use Reduction
Develop Local Supplies	15%
Maximize System Flexibility	7%
Minimize Costs	15%
Ensure Sustainability	7%

As shown in the table, the Maximize System Flexibility and Ensure Sustainability strategies perform equally well in terms of short-term water use reductions, and both meet the District's long-term water supply reliability level of service goal. However, the Maximize System Flexibility strategy relies heavily on imported water supplies (30,000 acre-feet of dry year option agreements) to reach this level of reliability. The Ensure Sustainability strategy reaches this level of reliability in part because of imported water supplies (12,000 acre-feet of dry year option agreements), but also because of the local supply reliability provided by the IPR project. Without the option agreements, the short-term reductions would be about 20% for the Maximize System Flexibility strategy and about 15% for the Ensure Sustainability Strategy.

6.3. Planning Objective Ratings

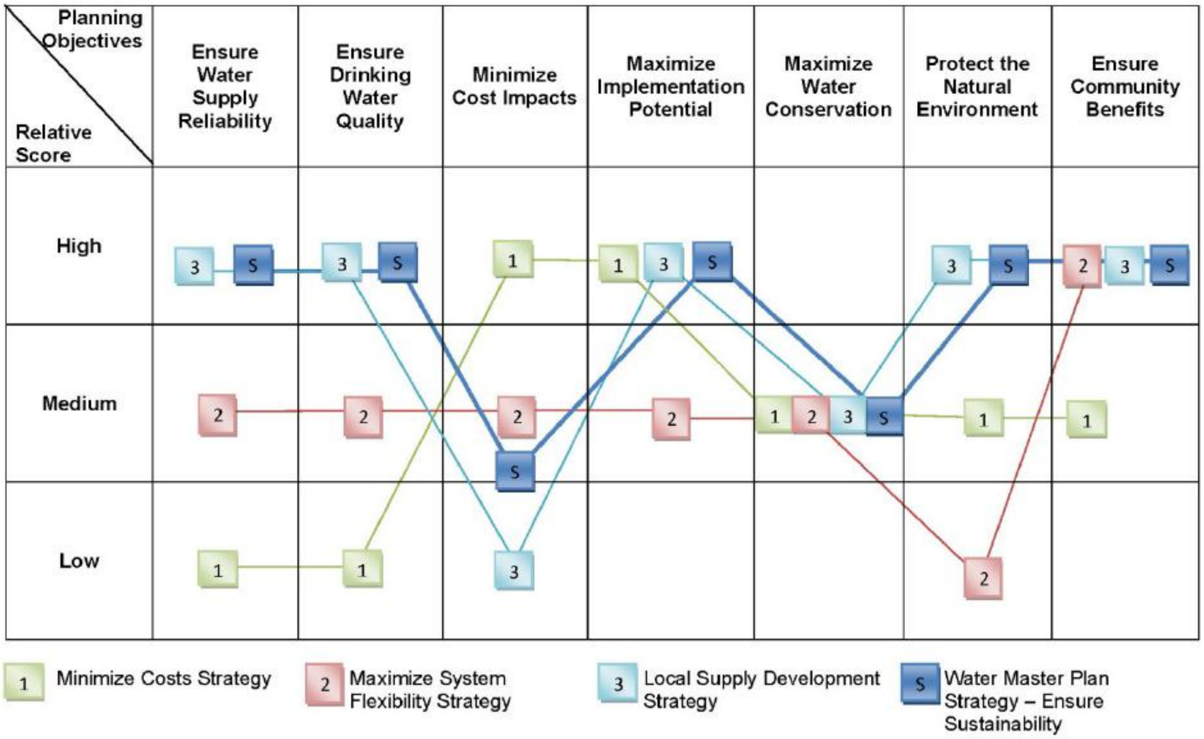
The planning objective ratings also provided information to help determine the best performing of the four preferred strategies. District staff and stakeholders scored the strategies using planning objectives. A summary of the scores is presented in Figure 6-1.

The Figure shows that the Ensure Sustainability strategy (4) rates as high as or higher than the other strategies in all areas except cost. The Develop Local Supplies strategy (1) is rated similar to the Ensure Sustainability strategy, but rates lower in costs. The Ensure Sustainability strategy is less costly than the

Develop Local Supplies strategy because it includes sale of imported water supplies in years when the supplies are not needed in the county, which provides revenue to offset some of the costs.

Minimize Costs strategy (2) and the Maximize System Flexibility Strategy (3) generally rated worse than the others across the board. For the Minimize Costs strategy, the low scores in reliability, water quality, and implementation potential are of particular concern. This shows that the strategy does not provide many benefits other than being inexpensive. The Maximize System Flexibility strategy is average in most areas, but scores low in protecting the natural environment due to the vast environmental impacts associated with reservoir expansion.

Figure 6-1. Planning Objective Scores for Preferred Strategies



6.4. Stakeholder Input

As noted in Section 6.3, the Stakeholder Steering Committee provided planning objective ratings for the strategies. At the time, the Ensure Sustainability strategy was not yet developed. The SSC scored Strategy 1 - Develop Local Supplies highest in all areas except costs. This mirrors what the SSC indicated verbally[42]. The SSC was supportive of a high level of reliability and the idea of developing local supplies, specifically indirect potable reuse. The SSC supported building on existing infrastructure and institutional agreements. One stakeholder stated that the strategy is the “most sustainable.”

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[42] Section 5-8 provides a summary of verbal stakeholder input.

The other two strategies were not as strongly supported. Some stakeholders expressed concern about expanding reservoirs and impacts on fisheries and the environment due to expanding inundation areas, though stakeholders representing the agricultural sector supported reservoir expansion. Several stakeholders expressed an interest in avoiding new imported water supplies, due to concerns about the reliability of water supplies from the San Francisco Bay Delta.

The key message received from the SSC was the desire for a high level of reliability without short-term water use reductions in the future. Based on this input, staff built on the Develop Local Supplies strategy to create the Ensure Sustainability strategy. Staff discussed the Ensure Sustainability strategy with stakeholders in December 2011 and April 2012 committee meetings. The committee members at both meetings were supportive of the strategy, as it satisfied their interests in future reliability, developing local supplies through indirect potable reuse, and building on the existing system.

6.5. Economic Analysis

Staff worked with Stratus Consulting to prepare a benefit-cost analysis for the preferred water supply strategies. Given the similarities between Develop Local Supplies and Ensure Sustainability, the Develop Local Supplies strategy was not included in the benefit-cost analysis. The full benefit-cost analysis is presented in Appendix K.

The benefits estimate cost of shortage for residential service only. A separate study, provided in Appendix L, identifies the economic consequences of Water shortages on commerce and industry. Water reductions of 10 to 30 percent, if imposed on commerce and industry, could result in a decrease in the local sales losses of $900 million to more than $10 billion, or about 7 percent of annual sales revenue.

Assumptions: The Benefit-Cost analysis is based on several assumptions, listed below.

- Cost of Capital = 5.5% - this is consistent with District financial program input
- General Inflation = 3% - this is a common or standard assumption used in economic analysis
- Discount Rate = 2.5% - calculated from the (Cost of Capital) – (General Inflation)
- Real Inflation for short term imported water option purchase costs = 4% - this was based on a review of historical inflation rates for water and other related commodities. This implies that short-term purchase costs for water will inflate at 1% more per year than general inflation.
- Real Inflation for State Water Project long-term contract water purchases = 9% - this is consistent with District analysis of current annual inflation on state water project water costs
- Analysis Period = 50 years – this is a standard life-cycle used in economic analysis[43]

Costs: Capital project cost estimates were reviewed and refined to standardize common cost elements across projects. Capital and annual costs were projected by year, over the 50 year analysis period. Most costs were discounted at 2.5% to obtain present values. Imported water option agreement costs were inflated at 4%, and then discounted at 5.5%. State Water Project long-term contract purchases were inflated at 9%, then discounted at 5.5%. In addition, the analysis includes an "external" cost: the cost of un-used wet year water. As compared to the baseline, some strategies increased the amount of water that could not be put to beneficial use in wet years. The cost of un-used wet year water was calculated using current District imported water contract rates.

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[43] For projects with a lifecycle longer than 50 years, an end of life capital credit was applied to account for the remaining life of the project.

Benefits: Some benefits were quantified while others were qualitatively evaluated. The following benefits were quantified:

- Drought Year Reliability: This benefit was valued based on willingness to pay[44] to avoid drought year shortages.
- Average Year Reliability: This benefit was valued based on the avoided costs of purchasing additional long-term imported water contracts from another State Water Project contractor.[45]
- Reduction in Carbon Emissions: Some strategies change the amount of carbon emissions as compared to the District's baseline system. This benefit was valued as the avoided social cost of carbon.
- Reduced Algae Treatment Costs: Some strategies provide additional water for blending at water treatment plants. Additional blending water can greatly reduce treatment costs associated with algae blooms in the District's Federal water supplies in San Luis Reservoir. This benefit was valued as an estimate of the reduction in treatment costs.

District and Consultant staff also evaluated a variety of benefits that could not be easily quantified, including increased local control of county supplies, improvement in groundwater quality, reduced wastewater discharge to the bay, increased ability to meet fish flow requirements, and improved recreation or flood benefits.

Results: All strategies have a benefit-cost (B/C) ratio greater than one, meaning the quantifiable benefits outweigh the costs for all strategies. Ensure Sustainability has the largest value of benefits, more than four times the amount of benefits provided by the Minimize Cost strategy. The Minimize Costs strategy has the lowest present value cost, consistent with the name of the strategy. The quantitative results of the B/C analysis are provided in Table 6-3.

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[44] Willingness to pay was for residential service only. This was estimated based on Stratus Consulting data for a similar service area to Santa Clara County.

[45] The analysis assumes that with no new projects in place, the District would have to purchase additional contract water to make up the future average shortfall.

Table 6-3. Benefit-Cost Analysis Results

Strategy	Present Value Costs[46]	Present Value Benefits	Benefit/Cost
Minimize Costs	$ 77,048,720	$ 214,355,966	2.78
Maximize System Flexibility	$ 381,735,493	$ 768,563,101	2.01
Ensure Sustainability[47]	$ 444,406,439	$ 981,913,022	2.21

The qualitative benefit analysis is provided in Appendix K. The qualitative analysis shows all strategies reduce wastewater discharges to the bay. The Maximize System Flexibility strategy and the Ensure Sustainability strategy both help meet fish flow requirements. In addition, the Maximize System Flexibility strategy improves recreation and flood benefits, and the Ensure Sustainability strategy improves groundwater quality.

Sensitivity Analysis: The economic analysis is sensitive to changes in assumptions on inflation and discount rates. Due to the sensitivity of assumptions, it's best to look at a range of values to interpret B/C analysis results. Appendix K presents several sensitivity analysis charts that show how the benefit-cost ratios change with changes in assumptions.

The B/C analysis is highly sensitive to changes in the inflation rate assumption for dry year option purchase costs, as shown in Figure 6-2.

In this case, if inflation increases from the assumed 4% to 5%, the B/C ratios for Ensure Sustainability and Minimize Costs strategies become almost the same. If the inflation rate increases to 6%, the Ensure Sustainability B/C ratio becomes higher than the Minimize Cost strategy. This highlights the importance of looking at a range of assumptions, particularly for imported water inflation rates as these are difficult to estimate due to risks associated with future reliability of imported water.

The results of the sensitivity analysis show that the Ensure Sustainability option has the highest B/C ratio unless a low inflation rate is used for the dry year option cost. The B/C ratio of the strategy is somewhat resilient to changes in inflation rates.

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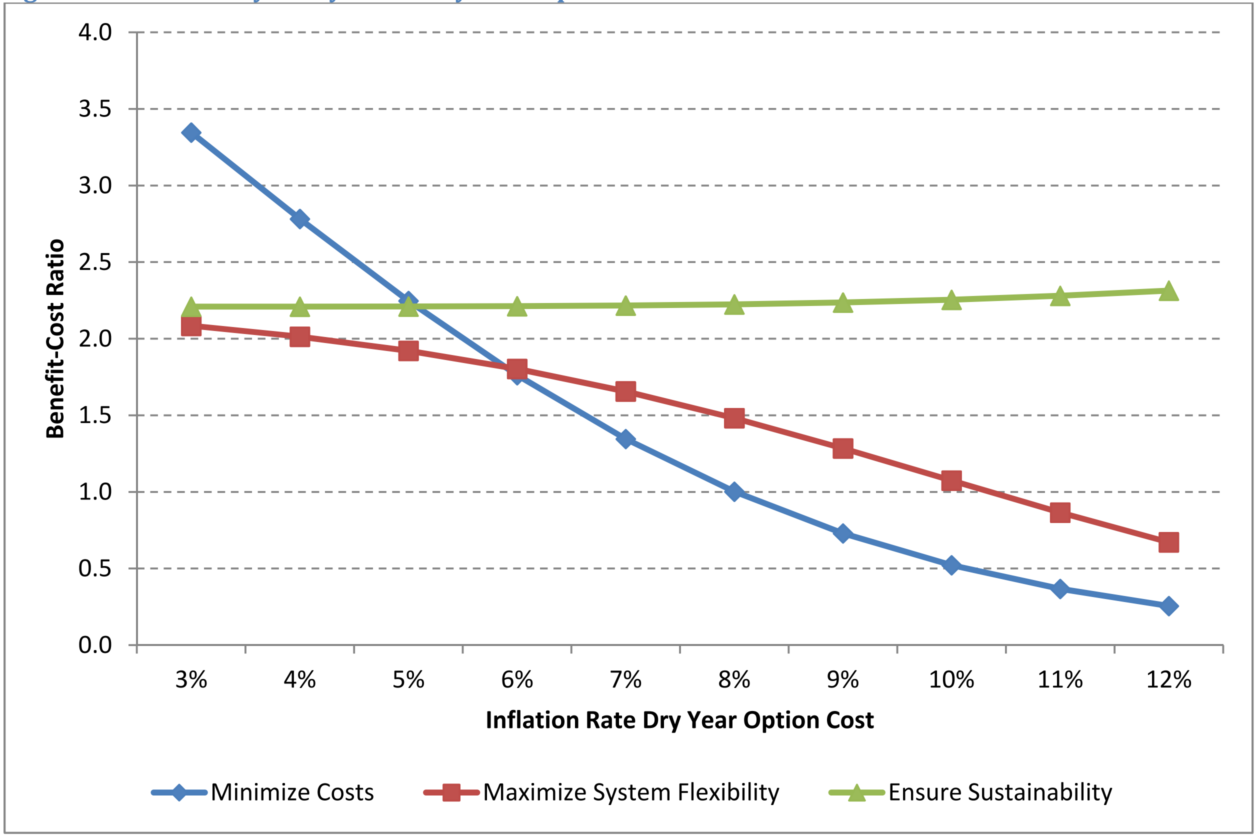
[46] Includes capital, annual O&M, and "external cost" of unused wet year water. Costs shown here were updated from planning level costs presented in Table 6-1.

[47] Representative of the Develop Local Supplies strategy

Figure 6-2. Sensitivity Analysis for Dry Year Option Purchase Cost Inflation Rate



6.6. Recommended Water Supply Strategy

Staff analyzed the WEAP modeling results, the planning objective scores, and the economic analysis to identify a recommended water supply strategy. On May 15, 2012, the District Board of Directors accepted the Ensure Sustainability strategy for the Water Master Plan because it:

- Best satisfies the Water Master Plan planning objectives.
- Develops local supplies consistent with stakeholder interests and State policy to reduce reliance on the Delta.
- Manages risks better than lower cost strategies that rely more exclusively on imported water. The new local drought-proof supply would be available regardless of climate change impacts on rainfall and runoff, outages in the Delta, and regulatory or policy decisions that affect local surface and imported water supplies.

6.7. Additional Validation of Recommended Strategy

The recommended strategy was analyzed using the hydraulic and groundwater models to confirm that it would work with the District's existing system. Staff analyzed the recommended water supply strategy with H2ONet to confirm that the strategy would not result in additional hydraulic constraints. No additional constraints were identified.

Staff analyzed the recommended water supply strategy using the Santa Clara Plain and Llagas Subbasin groundwater models to confirm that it will achieve the District's basin management objectives. The projected supplies and demands from WEAP were input into the groundwater models. Then, the groundwater models simulated groundwater levels and storage with the recommended water supply strategy in place. For the most part, the simulation showed that the recommended strategy will achieve the District's basin management objectives. Two wells, one in the Santa Clara Plain and one in the Llagas Subbasin, showed groundwater levels below basin management objectives during an extended drought. It is difficult to determine whether the conditions in the two wells are due to modeling parameters such as basin boundary conditions or actual water supply conditions.

6.8. Financial Impact Analysis

This section summarizes the estimated groundwater production charge increases for implementing the Water Master Plan recommended strategy. Additional detail on the financial analysis, including information on assumptions associated with demand, expenditures and debt financing projections is provided in Appendix M. The financial analysis is based on a 25-year financial model that compares a baseline projection to one that includes the projects from the Water Master Plan recommended strategy. The difference between the scenarios is the long-term impact of implementing the strategy to water charges in the North County and the South County.

The groundwater production charge provides the basis for setting treated water, surface water and recycled water charges. Therefore, this summary focuses on the impact of the Water Master Plan recommended strategy on the groundwater production charge. The North County (Zone W-2) groundwater rates necessary to fund the recommended strategy range from $5 per acre foot (AF) in FY2018-19 to $304/AF by the last year of the financial forecast. This is an incremental average increase of 0.6% annually from FY 2016-17, when projects begin, through FY 2036-37, when the financial forecast ends (21 years). The recommended strategy, as laid out in this plan, will have minimal effects on South County (Zone W-5) groundwater production charges because most of the new investments benefit North County [48].

The implementation of the Water Master Plan recommended strategy includes the possible sale of existing supplies during years when the District's needs are otherwise met and District storage in Semitropic Groundwater Bank is near full. These revenues help offset the cost impact of the recommended strategy, and are included in the rate projections. Additionally, the projections include minor adjustments to the State Water Project tax in conjunction with purchasing incremental State water as part of the Dry Year Option Agreements project.

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[48] The base 25 year WUE forecast averaged annual percent change for years FY17-37 is 4.9% annually without master plan projects. With projects, it is 5.5% for an incremental difference of .06%. These are averaged incremental increases based on the assumptions identified in Appendix L.

Baseline Forecast: The 10 year financial forecast prepared annually for the *Protection and Augmentation of Water Supplies (PAWS)* serves as the base for the Water Master Plan 25 year rate projection. The assumptions used in the 10 year financial forecast are discussed at length in the FY2012-13 PAWS report[49]. For Master Plan projections, the 10 year forecast has been updated for fiscal years 2011-12 closing and 2012-13 budget changes, plus minor adjustments to the capital program. The 10 year financial forecast was extended out another 15 years based on expense projections and the corresponding rate adjustments necessary to maintain reserves at policy levels. Information on the assumptions used to build the forecasts can be found in Appendix M. This base forecast is compared to one that includes the recommended strategy projects. The difference in water charges is the estimated impact of the recommended strategy.

Water Master Plan Projects: The Water Master Plan is comprised of one revenue project and five operating and/or capital projects which are listed in Table 6-4. Revenue and expenses for these projects begin in FY 2016-17, with operating expenses continuing through FY 2036-37, the last year of the financial forecast.

Table 6-4. Inflated Project Costs[50]

Expense Projects	
Gray Water Use	$ 4.6
North County Recharge	25.9
Indirect Potable Reuse Recharge - Los Gatos Ponds	688.6
Lexington Pipeline	19.0
Imported Water Dry Year Option Agreements	55.8
Total Expenses	$ 793.9
Less Revenue Project	
Imported Water Reoperations	$ (78.0)
Net Master Plan Cost	$ 715.9

Rate Impacts of Implementing the Water Master Plan: The Water Utility Enterprise is comprised of two major zones of benefit: North County (Zone W-2) and South County (Zone W-5).

The North County is generally defined as the portion of the Santa Clara County north of Metcalf Road. North County includes three water treatment plants in addition to groundwater recharge facilities. It accounts for approximately 80% of District water consumption but because of higher charges due to higher costs, about 95% of Water Utility revenue. North County revenue is primarily derived from treated water and groundwater charges which are adjusted in this report to gauge the impact of the Master Plan.

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[49] The PAWS report can be viewed at http://www.valleywater.org/EkContent.aspx?id=7551&terms=protection+and+augmentation+of+water+supplies

[50] Project costs in this table do not match project costs in the benefit cost analysis. The benefit cost analysis provides net present value costs using a discount rate of 2.5% and a project life of 50 years. This table is showing the inflated costs over the 25 year period of rate analysis. Both sets of costs are based on the same capital and annual cost estimates, and are accurate for the purposes of each analysis.

The South County is generally defined as the portion of the county south of Metcalf Road. South County does not include surface water treatment plant facilities but groundwater is actively managed through water recharge facilities. Within the Water Utility Enterprise, South County revenues and expenses are tracked separately from those of North County so that the groundwater production charges for services that benefit the South County Zone can be calculated. South County revenue is primarily from groundwater charges.

As shown in Figure 6-3, North County rate increases necessary to fund the Water Master Plan recommended strategy range from $5/AF beginning in FY 2018-19 to $304/AF by FY 2036-37. This is a 0.6% incremental average annual increase to groundwater charges over the 21 years that project revenue and expenses occur.

The South County rate analysis is illustrated in Figure 6-4. As can be seen, program costs can be absorbed without any change to rates over the life of the financial forecast because the portion of Water Master Plan activities that benefit the South County are offset by Imported Water Reoperations sales revenue during wet years.

Figure 6-3. North County Water Charge Analysis

Table 2: North County Rates - Comparison of Base to Master Plan

	(In Millions)																								
	FY 13	**FY 14**	**FY 15**	**FY 16**	**FY 17**	**FY 18**	**FY 19**	**FY 20**	**FY 21**	**FY 22**	**FY 23**	**FY 24**	**FY 25**	**FY 26**	**FY 27**	**FY 28**	**FY 29**	**FY 30**	**FY 31**	**FY 32**	**FY 33**	**FY 34**	**FY 35**	**FY 36**	**FY 37**
($/AF)																									
NC GWP charge/AF - Base	$ 622	$ 680	$ 745	$ 815	$ 895	$ 980	$ 1,070	$ 1,160	$ 1,220	$ 1,280	$ 1,312	$ 1,351	$ 1,392	$ 1,441	$ 1,491	$ 1,551	$ 1,613	$ 1,677	$ 1,744	$ 1,814	$ 1,887	$ 1,962	$ 2,041	$ 2,122	$ 2,207
NC GWP charge/AF - Master Plan	$ 622	$ 680	$ 745	$ 815	$ 895	$ 980	$ 1,075	$ 1,170	$ 1,250	$ 1,330	$ 1,410	$ 1,494	$ 1,584	$ 1,663	$ 1,746	$ 1,816	$ 1,889	$ 1,964	$ 2,043	$ 2,125	$ 2,210	$ 2,298	$ 2,367	$ 2,450	$ 2,511
Master Plan Increase/(Decrease)	$ -	$ -	$ -	$ -	$ -	$ -	$ 5	$ 10	$ 30	$ 50	$ 98	$ 143	$ 192	$ 223	$ 255	$ 266	$ 276	$ 287	$ 299	$ 311	$ 323	$ 336	$ 327	$ 328	$ 304
Operating Costs	$ 136	$ 146	$ 150	$ 155	$ 159	$ 164	$ 175	$ 193	$ 202	$ 210	$ 222	$ 235	$ 248	$ 263	$ 279	$ 295	$ 313	$ 332	$ 353	$ 375	$ 399	$ 424	$ 452	$ 481	$ 513
Capital Costs	$ 65	$ 95	$ 122	$ 187	$ 199	$ 110	$ 93	$ 27	$ 35	$ 119	$ 100	$ 105	$ 110	$ 116	$ 122	$ 128	$ 134	$ 141	$ 148	$ 155	$ 163	$ 171	$ 180	$ 189	$ 198
WSIMP Costs	$ -	$ -	$ -	$ -	$ 15	$ 16	$ 21	$ 17	$ 32	$ 34	$ 28	$ 60	$ 62	$ 65	$ 87	$ 72	$ 30	$ 25	$ 27	$ 27	$ 29	$ 46	$ 32	$ 33	$ 35
Total	**$ 201**	**$ 241**	**$ 271**	**$ 342**	**$ 373**	**$ 290**	**$ 289**	**$ 237**	**$ 269**	**$ 363**	**$ 350**	**$ 400**	**$ 421**	**$ 444**	**$ 487**	**$ 495**	**$ 478**	**$ 499**	**$ 527**	**$ 558**	**$ 591**	**$ 642**	**$ 663**	**$ 703**	**$ 746**

Chart 1: North County Rates - Comparison of Base to Master Plan

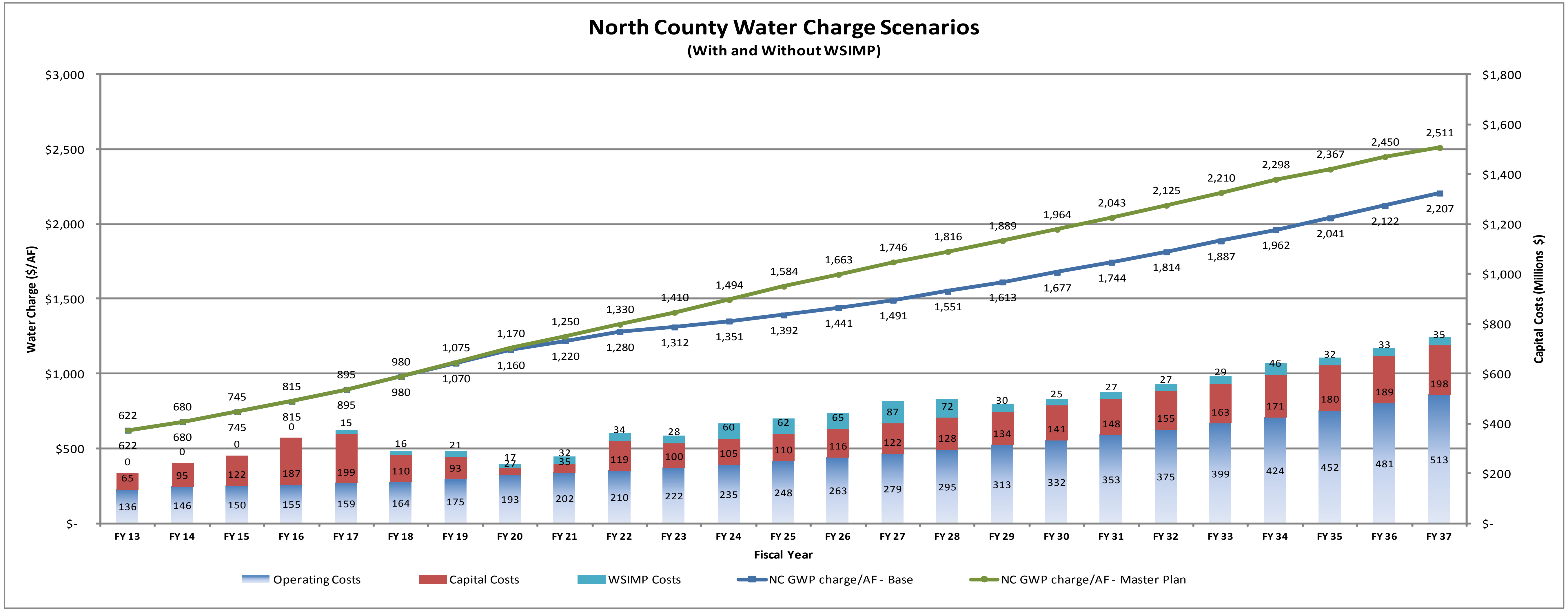
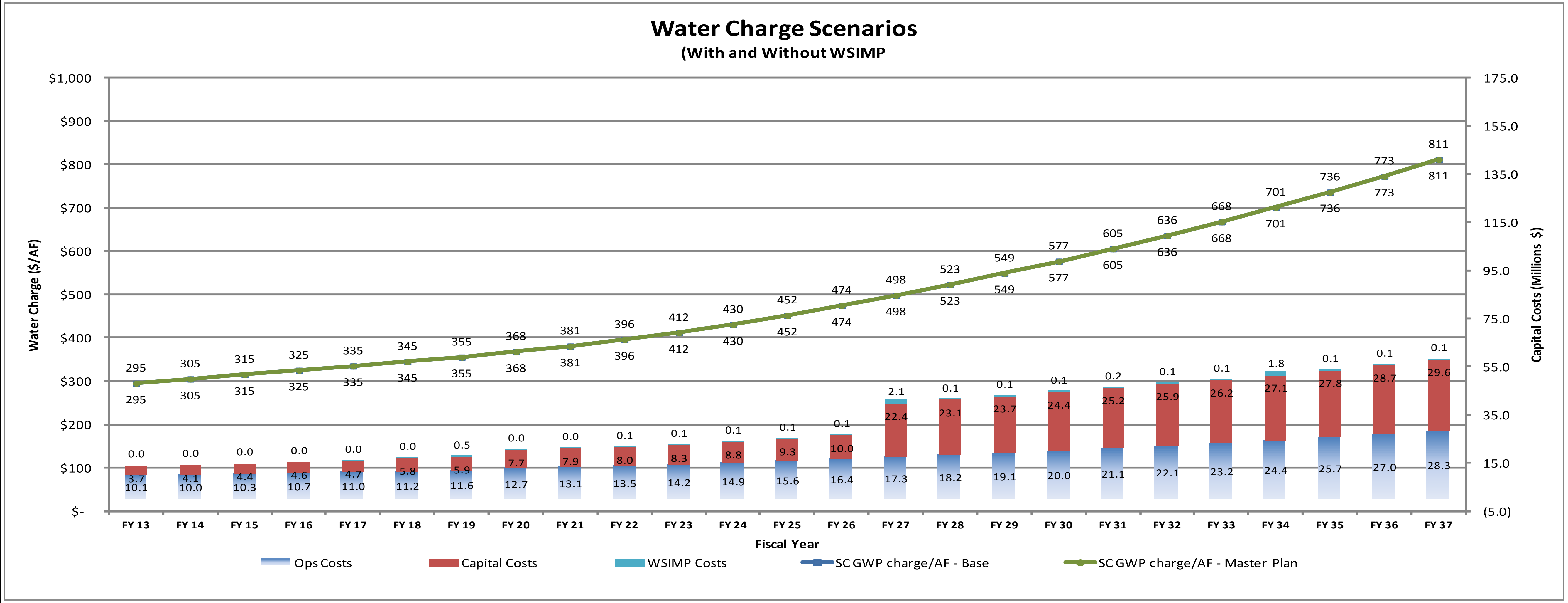


Figure 6-4. South County Water Charge Analysis

Table 3: South County Rates - Comparison of Base to Master Plan

	(In Millions)																								
	FY 13	FY 14	FY 15	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	FY 22	FY 23	FY 24	FY 25	FY 26	FY 27	FY 28	FY 29	FY 30	FY 31	FY 32	FY 33	FY 34	FY 35	FY 36	FY 37
($/AF)																									
SC GWP charge/AF - Base	$ 295	$ 305	$ 315	$ 325	$ 335	$ 345	$ 355	$ 368	$ 381	$ 396	$ 412	$ 430	$ 452	$ 474	$ 498	$ 523	$ 549	$ 577	$ 605	$ 636	$ 668	$ 701	$ 736	$ 773	$ 811
SC GWP charge/AF - Master Plan	$ 295	$ 305	$ 315	$ 325	$ 335	$ 345	$ 355	$ 368	$ 381	$ 396	$ 412	$ 430	$ 452	$ 474	$ 498	$ 523	$ 549	$ 577	$ 605	$ 636	$ 668	$ 701	$ 736	$ 773	$ 811
Master Plan Increase/(Decrease)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Operating Costs	10.1	10.0	10.3	10.7	11.0	11.2	11.6	12.7	13.1	13.5	14.2	14.9	15.6	16.4	17.3	18.2	19.1	20.0	21.1	22.1	23.2	24.4	25.7	27.0	28.3
Capital Costs	3.7	4.1	4.4	4.6	4.7	5.8	5.9	7.7	7.9	8.0	8.3	8.8	9.3	10.0	22.4	23.1	23.7	24.4	25.2	25.9	26.2	27.1	27.8	28.7	29.6
WSIMP Costs	-	-	-	-	0.0	0.0	0.5	0.0	0.0	0.1	0.1	0.1	0.1	0.1	2.1	0.1	0.1	0.1	0.2	0.1	0.1	1.8	0.1	0.1	0.1
Total	**13.8**	**14.1**	**14.7**	**15.3**	**15.8**	**17.1**	**18.1**	**20.5**	**21.0**	**21.6**	**22.5**	**23.8**	**25.1**	**26.5**	**41.8**	**41.3**	**42.9**	**44.6**	**46.4**	**48.1**	**49.6**	**53.3**	**53.6**	**55.8**	**58.1**

Chart 2: South County Rates - Comparison of Base to Master Plan



6.9. Summary

The Water Master Plan analyzed four preferred water supply strategies for consistency with water supply reliability goals (through WEAP modeling), planning objective scores, stakeholder input, and benefits and costs. The Ensure Sustainability strategy best meets the District's and stakeholder's interests. The Board of Directors accepted the Ensure Sustainability Strategy on May 15, 2012. Analysis of the strategy using groundwater, hydraulic and financial models further validated the strategy. The recommended strategy is described in more detail in Chapter 7.

CHAPTER 7. Water Supply Strategy

The data and analyses presented in previous chapters resulted in the identification of the 'Ensure Sustainability' strategy as the recommended strategy. This chapter provides a summary of the water supply strategy elements, its benefits, and its costs.

7.1 Strategy Elements

To provide a reliable supply of water to meet needs through 2035 the District's Ensure Sustainability water supply strategy relies on the following three elements:

1. Secure baseline supplies and infrastructure
2. Optimize the use of existing supplies and infrastructure
3. Increase recycling and water conservation to meet future increases in demands

This strategy ensures sustainability because it meets future increases in demands with conservation and recycling, builds on the existing baseline system, and manages risks to water supply reliability from climate changes and reduced imported water supplies. The strategy is also consistent with District policies and stakeholder interests.

The three elements of the Ensure Sustainability water supply strategy work together. The baseline water supply system will continue to support most of the county's future water needs. Optimizing the use of existing supplies and infrastructure leverages the investments the District has already made in water supply reliability and increases the system's flexibility. Additional recycling and conservation will bridge the gap between existing system capability and future demands, as well as manage risks from climate change and imported water reductions. Each of the water supply strategy elements is discussed below.

Baseline Water Supply System

- Existing natural groundwater recharge
- Existing local surface water supplies
- Recycled water use increasing from about 15,000 AFY in 2010 to about 30,000 AFY in 2035
- Existing imported water supplies
- Conservation savings increasing from about 51,000 AFY in 2010 to about 99,000 AFY in 2035
- Dam seismic retrofits and other improvements to remove operating restrictions
- Rinconada Water Treatment Plant capacity of 100 million gallons per day
- Main and Madrone Pipeline repairs

7.1.1. Secure Baseline Supplies and Infrastructure

The baseline water supply system is the most critical element of the water supply strategy, because it will provide the most water supplies and is the foundation of future water supply investments. The baseline water supply system is comprised of the existing and already planned water supplies and infrastructure. The Water Master Plan is built on the assumption that baseline system will be available through the planning horizon of 2035. Baseline water supplies are expected to increase from the current average of about 398,000 AFY to an average of 421,000 AFY in 2035. The increase in baseline supplies is due to removal of operating restrictions on existing reservoirs and increased non-potable water recycling. Baseline conservation savings are projected to increase from about 53,000 acre-feet (AF) in 2011 to about 99,000 AFY by 2030. These savings reduce demands on the water supply system and the need for more capital-intensive improvements. Ensuring adequate investment in the existing system is critical to reliability, because without the baseline system future water supply shortages could be severe.

7.1.2. Optimize the Use of Existing Supplies and Infrastructure

Groundwater Recharge: To fully utilize additional supplies that could be developed under the Ensure Sustainability strategy, new groundwater recharge ponds will increase the District's groundwater recharge capacity. The yield from the new ponds is about 3,300 AFY on average. The recharge ponds could be located on the west side of the valley, along Saratoga Creek near Highway 85. Additional groundwater recharge ponds provide additional capacity to process wet-weather flows and help maintain groundwater levels, both of which help manage risks due to climate change and supply interruptions. The estimated present value cost of new groundwater recharge ponds is about $14 million.

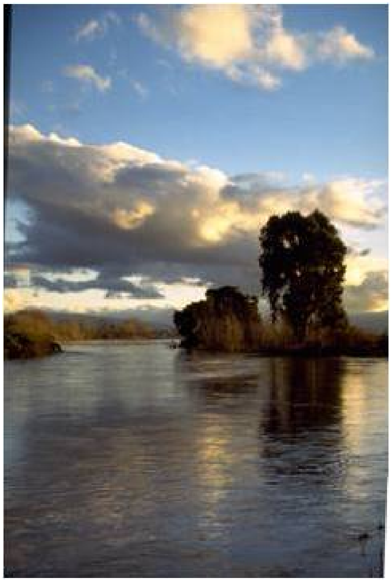
Pipelines transport water and add flexibility to water supply system operations.

Reservoir Pipeline: A connection between Lexington Reservoir and the raw water system will provide greater flexibility in using existing local water supplies. Use of recycled water for recharge, as described below under Indirect Potable Reuse, will allow surface water from Lexington Reservoir to be put to beneficial use elsewhere in the county. In addition, the pipeline will enable the District to capture some wet-weather flows that would otherwise flow to the Bay. The pipeline is expected to provide an average annual yield of 1,500 acre-feet. The estimated present value cost of the reservoir pipeline is about $10 million.

Imported Water Reoperations: The District would re-operate the Semitropic Groundwater Bank when it is nearly full and the District water supply needs are otherwise met to sell or exchange up to 50,000 AFY of stored water. This would create additional space in the Semitropic Groundwater Bank for carryover of supplies during wetter years, maximize the value of the District's existing assets (imported water contracts and investment in the Semitropic Groundwater Bank), and potentially help fund investments in infrastructure and additional local supplies. The estimated present value benefit of imported water operations is about $74 million.

7.1.3. Increase Recycling and Conservation

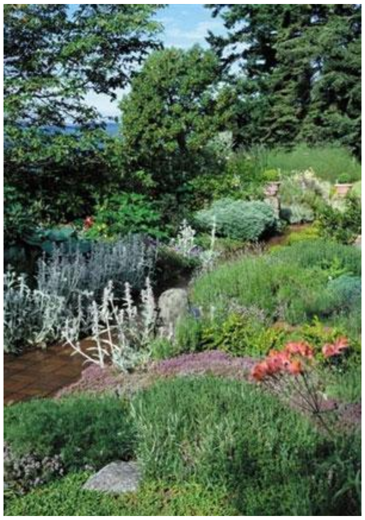
Indirect Potable Reuse: Indirect potable reuse is a high-quality, local drought-proof supply that is resistant to climate change impacts and most other risks identified in Chapter 2. It will provide a new local supply for recharge, which will help maintain reservoir supplies that are used to meet flow and temperature requirements for fish in local creeks. Indirect potable reuse would also reduce discharges to South San Francisco Bay from the wastewater treatment plants. Using advanced treated recycled water for recharge also provides groundwater quality benefits, in that advanced treatment removes nearly all the salts from the water that is used for recharge, resulting in high quality water being recharged into the groundwater basin.



Indirect potable reuse includes delivering advance treated recycled water to groundwater recharge ponds

The Ensure Sustainability strategy relies upon development of indirect potable reuse to provide most of the new water supply to meet future water needs. The Water Master Plan assumes that at least 20,000 AFY of advanced treated recycled water will be available for groundwater recharge by 2030. A number of potential projects are being identified, and future development will be influenced by strategic planning currently underway in partnership with South Bay Water Recycling and others. For purpose of this Water Master Plan analysis, a project was assumed to use water treated at the existing San Jose/Santa Clara Water Pollution Control Plant and pumped to existing recharge ponds in the Los Gatos Recharge System.

One challenge to indirect potable reuse project will be overcoming some people's concerns about the quality of advanced treated recycled water. New regulations could also affect the benefits of indirect potable reuse. When State regulations move toward permitting direct potable reuse (putting advanced treated recycled water directly into pipelines that supply drinking water treatment plants), the District may want to consider that option as it adds flexibility, reduces costs, and potentially reduces energy use. The water supply strategy is to support indirect potable reuse by 1) conducting technical studies, 2) increasing public awareness, 3) monitoring regulatory development, and 4) participating in and conducting regional recycled water master planning. The estimated present value cost of indirect potable reuse is about $339 million.



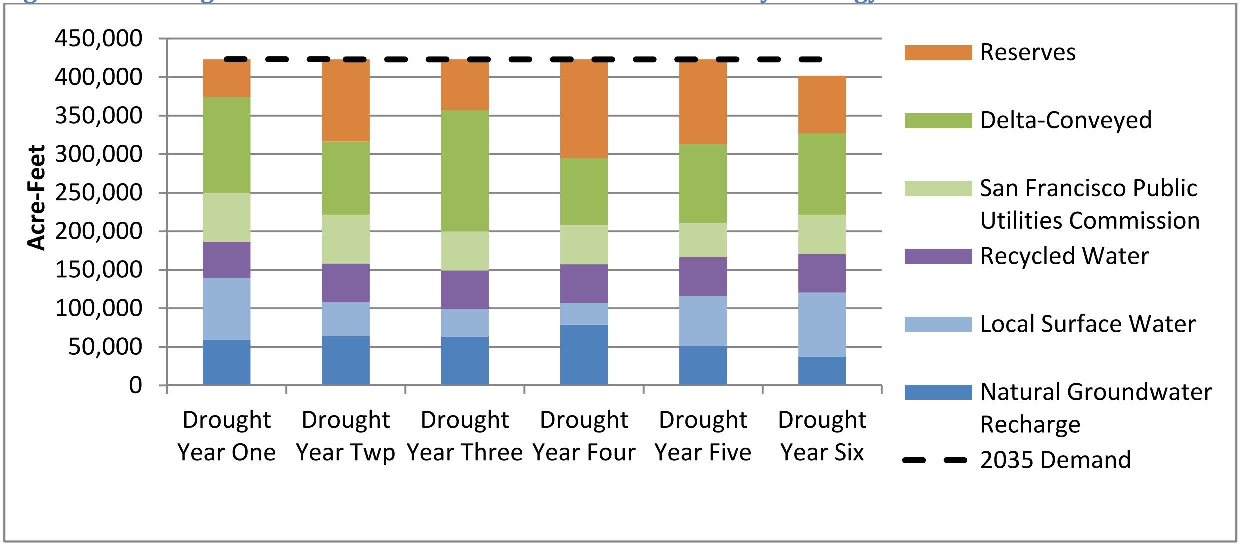
Gray water reuse provides a sustainable supply of water for irrigation

Gray Water Reuse Rebate Program: The gray water reuse rebate program will provide financial incentives to customers who install reuse systems. This would result in about 300 AFY in water savings, at a relatively low cost. The program could be expanded to increase water savings, depending upon resolution of public agency concerns about water quality and public health issues. The estimated present value cost of a gray water reuse rebate program is about $3 million.

7.2 Strategy Benefits

Water Supply Reliability: The strategy meets the District's long-term water supply reliability level of service goal to meet at least 100 percent of average annual water demand identified in the District's Urban Water Management Plan during non-drought years and at least 90 percent of average annual water demand in drought years. Figure 7-1 shows water supply availability during an extended drought like the one that occurred from 1987 to 1992 with the Ensure Sustainability water supply strategy in place and the 2035 demand level.

Figure 7-1. Drought Year Shortfalls under Ensure Sustainability Strategy



With the strategy in place, the magnitude of short-term water use reductions in 2035 will decrease from 30 percent under baseline conditions (without new projects) to 7 percent with the strategy. The frequency of short-term water use reduction will decrease from 14 percent to 2 percent. Figure 7-2 illustrates these improvements.

The water supply strategy develops local water supplies consistent with the Water Master Plan objectives and State policy to reduce reliability on the Delta for meeting future needs. Between now and 2035 as the Water Master Plan is implemented, the mix of countywide supplies and long-term conservation savings will change as follows and illustrated in Figure 7-3.

- Local water supplies (including groundwater and surface water) decrease from about 33 percent to 30 percent, though the amount local supplies increase over time
- Water reuse (recycling and indirect potable reuse) increases from about four percent to eight percent

- Conservation savings increase from about 12 percent to about 18 percent
- Imported water supplies decrease from about 51 percent to 44 percent, though the amount of imported water stays about the same over time

The Water Master Plan strategy also adds reliability by adding system flexibility in that it adds a new connection between a water supply source (Lexington Reservoir) and the raw water system, and it adds groundwater recharge capacity to make use of additional wet-year supplies.

Figure 7-2. Level and Frequency of Short-Term Demand Reduction under 2035 Demands

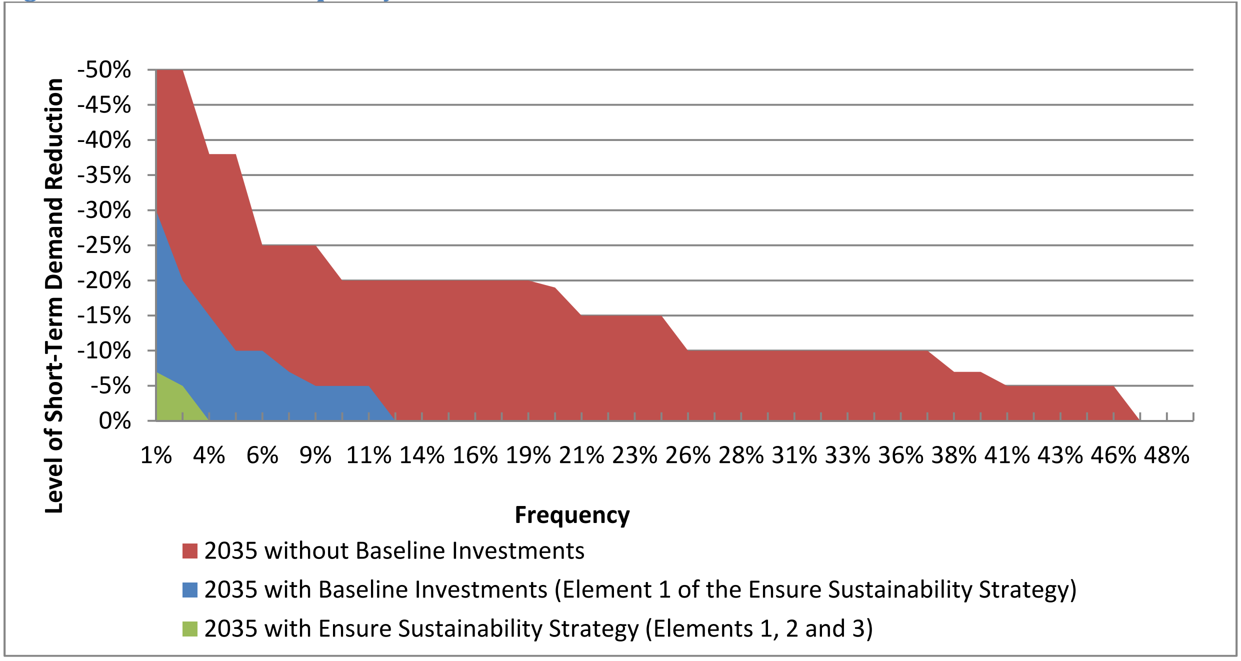
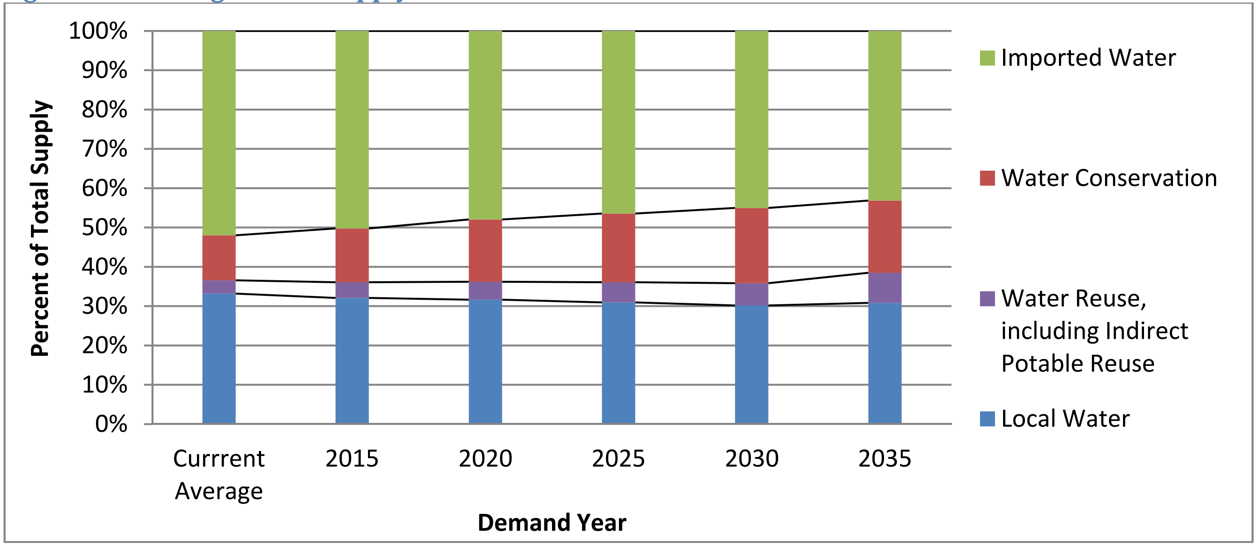


Figure 7-3. Average Water Supply Mix over Time



Water Quality: The strategy improves groundwater quality by using advanced treated water for groundwater recharge. Also, connecting Lexington Reservoir to the raw water system maximizes drinking water treatability by providing another source of water for blending at drinking water treatment plants during high algae episodes.

Implementation: Once implemented, the strategy is unlikely to be significantly affected by hydrology and changes in regulations and policies. Indirect potable reuse, non-potable recycled water, and water conservation are the cornerstones of the water supply strategy. They are local, drought-resistant supplies that will be available to meet the county's future water needs. There are some risks associated with implementing indirect potable reuse, but these can be mitigated through a well-designed and executed public engagement process, supported by regulators and demonstration of the safety and effectiveness of the treatment process.

Water Conservation: The strategy includes a gray water reuse rebate program that will increase water conservation.

Natural Environment: The Water Master Plan strategy reduces discharges to southern San Francisco Bay and preserves local surface water for environmental uses in creeks. Construction projects in the water supply strategy would primarily be within the urbanized area of the county. One negative benefit to the natural environment was captured in the economic analysis of the water supply strategy. The strategy will result in increased greenhouse gas emissions due to the energy intensity of the wastewater treatment processes. Future improvements in treatment process efficiency may help mitigate greenhouse gas emissions, or the District may be able to offset the emissions through improvements at other facilities.

Community Benefits: The Water Master Plan strategy does not have disproportionate impacts between zones and it has the potential for providing water recreation benefits near new groundwater recharge facilities.

7.3 Strategy Costs

Stakeholders value water supply reliability and most are willing to pay for it. The economic analysis found that the benefits of the water supply strategy are more than double the costs[51]. The present value cost of the water supply strategy, excluding the baseline system, is about $440 million. This does not include a present value benefit of about $70 million from imported water reoperations. The present value cost of maintaining the baseline system is much higher, about $2 billion[52].

The estimated impacts on groundwater production charges in Zone W-2 range from none up to a peak of about $335/AF in 2034. This is an incremental average increase of 0.6% annually from FY 2016-17, when projects begin, through FY 2036-37, when the financial forecast ends (21 years). The groundwater production charge for the baseline system will be about $2,200/AF at that time.

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[51] See chapter 6 for the full economic analysis.

[52] This is the present value of continuing current operations and maintenance budgets over a 50 year time period, discounted at 2.5%, consistent with the economic analysis presented in Chapter 6.

The District may be able to reduce costs for the water supply strategy if the following opportunities become available in the future:

- Direct potable reuse is permitted and accepted by the community;
- Advanced treatment technologies become less expensive, more efficient, or both; and
- Partners are willing to enter into imported water exchange agreements.

7.4 Summary

The Ensure Sustainability strategy relies on the following three elements:

1. Secure baseline supplies and infrastructure
2. Optimize the use of existing supplies and infrastructure
3. Increase recycling and water conservation to meet future increases in demands.

The strategy will enable the District to meet its long-term water supply reliability level of service goal. Though the strategy is expensive, it has a relatively small impact on rate increases when compared to maintaining the baseline system. Information on how the strategy will be implemented is provided in Chapter 8.

CHAPTER 8. Implementation Plan

This chapter describes the implementation plan for the recommended strategy that was presented in Chapter 7. Implementation is a critical piece of the recommended strategy and occurs over the full term of the plan, to 2035. Implementation of the Ensure Sustainability water supply strategy would occur over the 2035 planning horizon. Planned investments in water conservation, water recycling, and the existing water supply system will provide for most of the increased water supply needed to meet future demands. This gives the District time to conduct the necessary work to support the most costly project in the water supply strategy: indirect potable reuse. Necessary work includes building the foundation of public support, researching advancements in treatment effectiveness and efficiency, and monitoring regulatory developments. This chapter contains detailed information on what activities can be undertaken to implement the Ensure Sustainability strategy. The chapter concludes with information regarding monitoring and future updates to the Water Master Plan.

8.1. Overview

The implementation plan consists of five phases over the next 20 years. An overview of the plan is shown on the following page in Figure 8-1. A summary of the implementation plan for new projects and programs is below.

- **Phase A: 2012 – 2016:** Further studies and planning for projects and programs, as well as public education, outreach, and engagement
- **Phase B: 2017 – 2021:** Project level planning for a new recharge pond and the IPR project, as well as beginning imported water reoperations and the gray water rebate program. Begin design for IPR and groundwater recharge ponds.
- **Phase C: 2022 – 2026:** Complete design and begin construction of IPR; complete design and construction of groundwater recharge ponds.
- **Phase D: 2027 – 2031:** Complete construction of IPR and begin operations.
- **Phase E: After 2031:** Operations of all new projects and programs

The District will monitor water supply conditions, update assumptions, and periodically validate this implementation plan. The Water Master Plan does not commit the District to a particular course of action. To capture changing conditions such as changes in supply and demand projections, climate, regulations, and baseline systems, the District will conduct a master plan update every five years and will adjust the strategy and implementation plan accordingly.

Figure 8-1. Implementation Approach for Recommended Strategy

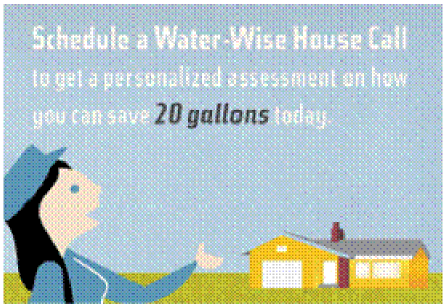
Strategy Element	Phase A: 2012 – 2016	Phase B: 2017 – 2021	Phase C: 2022 – 2026	Phase D: 2027 – 2031	Phase E: After 2031
1. Secure Existing Supplies and Infrastructure (Baseline Water Supply System)	• Participate in Recycled Water Master Plan Updates • Continue Expanding Water Conservation Savings • Bay Delta Conservation Plan Completion • Secure SFPUC supplies • Secure Dry Year Option Agreements • FAHCE Settlement Completion • Climate Change Studies • Infrastructure Reliability Master Plan	• Continue Expanding Water Conservation Savings • Secure CVP M&I Allocation Agreement beyond 2022 • Dam Seismic Retrofits Construction • Main and Madrone Pipelines Rehabilitation • Replace Vasona Pumps • Secure Dry Year Option Agreements	• Continue Expanding Water Conservation Savings • Secure Dry Year Option Agreements	• Conservation program savings of 99,000 AFY • Renew CVP Water Supply Contract • Secure Dry Year Option Agreements	• Recycled water use of approximately 30,000 AFY • Secure Dry Year Option Agreements
2. Optimize the Use of Existing Supplies and Infrastructure *Adds about 5,000 AFY of supply*	• Negotiate and obtain any necessary permit for imported water reoperations	• Groundwater recharge pond planning study and design • Lexington Pipeline planning study and design • Begin imported water reoperations	• Construct groundwater recharge ponds • Construct Lexington Pipeline • Continue imported water operations	• Begin operating new facilities • Continue imported water reoperations	• Continue operating new facilities and imported water reoperations
3. Increase Recycling and Conservation *Adds about 20,000 AFY of supply*	• Continue Public Outreach and Engagement on Recycled Water • Monitor advanced recycled water treatment effectiveness • Monitor recycled water and conservation regulations and policies • Develop groundwater protection guidelines for gray water reuse	• Continue public outreach and engagement on recycled water • Indirect potable reuse planning study • Begin gray water reuse rebate program	• Indirect potable reuse project design • Continue gray water reuse program	• Indirect potable reuse construction • Continue gray water reuse program	• Indirect potable reuse operation • Continue gray water reuse program
Estimated Cost for Baseline and New Investments, including Inflation	$1,114,000,000	$1,550,000,000	$2,097,000,000	$2,703,000,000	$3,416,000,000

8.2. Secure Existing Supplies and Infrastructure

This section describes how the Secure Existing Supplies and Infrastructure strategic element will be implemented over time. Information is present on securing planned water conservation savings, planned recycled water expansions, local water supplies, imported water supplies, infrastructure improvements, and special studies.

8.2.1. Water Conservation

Most of the water conservation program in the next 20 years is related to continuing current and planned programs to reach the goal of about 99,000 AF of water conserved per year by 2030. It will be challenging to meet the current 2030 target for water conservation, as the District has already implemented many basic conservation programs including programs to reduce residential, commercial and industrial, and landscape water use. However, continued investments in expanding water conservations savings are critical to managing demands and providing a reliable supply of water.


Schedule a Water-Wise House Call
to get a personalized assessment on how
you can save 20 gallons today.

Water-Wise House Calls is one of the District's many programs that help increase water conservation savings.

8.2.2. Recycled Water

Non-potable recycled water use is projected to expand from about 15,000 AFY to 29,000 AFY by 2035. Currently, the recycled water producers and retailers in northern Santa Clara County are updating their recycled water master plans. In Phase A (2012 – 2016), the District will focus on participating in these master planning efforts, and postpone any further capital investments in recycled water until master plans are completed. Specific tasks related to recycled water master planning include:

- Partner in the development of a Recycled Water Master Plan for the South Bay Water Recycling (SBWR) system.
- Postpone investment in the Regional Recycled Water Connector project until the SBWR Recycled Water Master Plan is completed.
- Monitor and participate in Recycled Water Master Plans for the Palo Alto and Sunnyvale systems.
- Evaluate the need for a regional master plan after the SBWR, Palo Alto, and Sunnyvale master planning efforts are complete.
- Align District recycled water program goals with SBWR, Palo Alto, Sunnyvale, and South County Recycled Water Master Plans, or with a regional master plan.

Expanding non-potable systems is not without risks. A primary concern is that expansion of non-potable use could have negative impacts on groundwater quality. Continuing technical studies on the effects of irrigation with recycled water, and completing the Salt and Nutrient Management Plans for north and south county groundwater subbasins will help address this risk. Blending advanced treated recycled water also helps address this risk, and will become increasingly important as non-potable use is expanded. Another risk of expanding non-potable use is that assets may become stranded. As locations of recycled water use change, pipes to those areas may become obsolete. Recycled water master planning will help mitigate this risk.

This pipeline in Gilroy provides recycled water to a local farmer

The District will continue to look for opportunities for additional stormwater recharge throughout the planning horizon. The State's Recycled Water Policy requires that Salt and Nutrient Management Plans include stormwater recharge goals and objectives. The District already recharges about 50,000 AFY of stormwater through existing recharge facilities. The District will continue to look for opportunities for additional stormwater recharge as part of developing groundwater recharge capacity and planning flood protection projects. These types of projects could help optimize local supplies.

8.2.3. Local Supplies

Since 1996, the District has been working to address a legal challenge to its water rights in the Stevens Creek, Guadalupe River and Coyote Creek watersheds. Before the challenge can be resolved, the District must prepare a Habitat Conservation Plan (HCP) covering all three watersheds to provide incidental take coverage for all the activities included in the draft settlement agreement developed through the Fisheries and Aquatic Habitat Collaborative Effort (FAHCE). When implemented, and the necessary environmental reviews conducted, the plan will improve local fisheries and serve as the basis for dismissal of the water rights challenge. The District will continue work to ensure the FAHCE settlement agreement is implemented, thereby providing assurances that its water rights are protected from future challenges. The District expects to begin implementation of the FAHCE settlement agreement in the next five years. Once implemented, the agreement may impact supplies due to operational limitations imposed by the agreement.

8.2.4. Imported Water

Maintaining the availability and reliability of the county's imported supplies is a critical element of the water supply strategy. The District's state and federal imported water supplies, water banking in the Central Valley, and water transfer agreements all rely on conveyance of water through the Delta. The District is well aware of risks associated with Delta water including potential catastrophic levee failures and more stringent endangered species regulations. Other imported water risks include an interruption of SFPUC supplies to the cities of San Jose and Santa Clara and a loss of reliability in the District's CVP M&I water supplies.

Recommended actions to address these risks and secure baseline imported water supplies include participation in developing the Bay Delta Conservation Plan (BDCP), securing SFPUC supplies to the county, and supporting an acceptable CVP M&I water reliability policy.

District participation in the BDCP is expected to continue through the first phase of Water Master Plan implementation, depending on the outcome of permitting decisions that will be made in summer 2013. Securing SFPUC supplies to the county will also occur in the first phase of implementation, as SFPUC decisions about its contract with the cities of Santa Clara and San Jose are scheduled to be made by 2018. The District will work with water retailers to supply guarantees from SFPUC.

Almost 40 percent of the District's current water supply is conveyed through the Delta

The Bureau of Reclamation is expected to complete environmental documentation and finalize its CVP M&I water shortage policy in the first phase of implementation, and the District will continue to implement its supporting supplemental agreement with CVP agricultural districts. This agreement is valid through 2022, and any needed work to extend it does not need to occur until the second phase of implementation.

The District currently uses various imported water options to supplement supplies during water shortages. The Water Master Plan includes securing such dry-year supplies, though dry-year option agreements. The amount of water secured in the option agreements increases from 6,000 acre-feet per year (AFY) in phase two, to 15,000 AFY in phase three, to 23,000 AFY in the beginning of phase four. Once indirect potable reuse supplies are available in phase four, the option agreement amount decreases to 12,000 AFY.

8.2.5. Infrastructure

The Water Master Plan assumes the District will make investments to repair and improve its existing dams, so that the reservoirs can be operated at full capacity. The District needs to maintain all its local storage capacity. The District will continue to make seismic improvements to its dams including Anderson, Calero, Guadalupe, and Almaden. Dam seismic upgrades will not be completed until the end of phase two, as some dams are still being studied to determine if retrofits are needed, and seismic retrofits take many years to complete. The District's FY 2013-17 Capital Improvement Program includes about $327 million for improvements at Anderson, Calero, Guadalupe, and Almaden dam. Additional investments may be needed to address seismic concerns at other dams that have not yet been studied completely.

The Main and Madrone pipelines are currently not being used to their design capacity but are needed for future supply reliability in the Llagas groundwater subbasin. The Water Master Plan assumes these two pipelines will be restored to full capacity. Without the pipelines restored, projected future shortfalls would be more severe. Restoration of the Madrone pipeline is more urgent, as it is not meeting current service requirements. The restoration of the Main and Madrone pipelines will be completed by the end of phase two. Project planning and design should incorporate additional capacity in the pipelines (approximately five cubic feet per second) to accommodate potential future needs to increase groundwater recharge in the Morgan Hill area. The estimated capital cost of restoring the pipelines is about $8 million.

Pipelines and other infrastructure need periodic rehabilitation and replacement

The Vasona pumps need to be replaced, as they are approaching the end of their life-cycle. Based on the capacity analysis performed as part of the Water Master Plan, existing pump station capacity is adequate for typical operations now and with full implementation of the Water Master Plan. However, upsizing the pumps would add increased operational flexibility. The Water Master Plan recommends designing the pump station upgrades to include the ability to add additional pumping capacity in the future. The preliminary capital cost estimate for Vasona Pump Station updates is about $5 million.

8.2.6. Special Studies

The Water Master Plan analyzed the District's vulnerabilities to climate change and presents the Ensure Sustainability strategy that adapts to those vulnerabilities. However, the District currently has insufficient data for estimating climate change effects on local water supplies. In order to better analyze climate change impacts in future Water Master Plan updates, the District will gather additional data on temperature, precipitation, and water use and analyze the data for correlations and trends. This information will be used to help forecast local climate change impacts. Climate change studies will be completed in Phase A, so that quantitative estimates can be included in the analysis for the next Water Master Plan update. A summary of climate change study needs is provided in Appendix N.

The District's Water Utility needs a comprehensive Infrastructure Reliability Master Plan to ensure a reliable water supply infrastructure system is available for current and future use. The Water Master Plan evaluated the need for new and upgraded infrastructure to transport, treat, and store current and future water supply sources. However, the Water Master Plan focus was on long-term term water supply planning and developing the District's overall water supply strategy. The District's Water

Infrastructure Reliability Project (IRP) was completed in 2005 and identifies operational and capital improvements needed for post-disaster reliability. Most of the identified improvements are being implemented, though the need for some elements (well fields) has changed. The District's Asset Management Program helps identify infrastructure renewals and replacements. Currently the program is focused on identifying renewals and replacements due to age or poor condition. A comprehensive Infrastructure Reliability Master Plan will address the reliability of the whole infrastructure system, analyze multiple modes of failure (mortality due to age or disaster, capacity, level of service) and address short-term service outages. The plan would identify projects and programs to ensure a secure and reliable infrastructure system.

8.3. Optimize the Use of Existing Supplies and Infrastructure

This section describes how imported water reoperations, the reservoir pipeline, and new groundwater recharge ponds will be implemented to optimize the use of existing supplies and infrastructure.

The water supply strategy includes imported water reoperations to sell or exchange up to 50,000 AFY of imported water when Semitropic Groundwater Bank storage levels are nearly full and District water supply needs are otherwise met. In Phase A of implementation, the District will identify potential water transfer and exchange partners, and develop necessary agreements and approvals.

The water supply strategy adds new infrastructure to the water supply system – the Lexington Reservoir Pipeline and additional groundwater recharge ponds. The Lexington Pipeline will be constructed concurrently with the IPR facilities, with planning beginning in Phase B. The pipeline will allow continued utilization of existing local water rights once the indirect potable reuse project is in place. The strategy also includes construction of new recharge ponds near Saratoga Creek. Project-level planning and design for the new ponds will begin in Phase B, and construction will occur in Phase C.

8.4. Increase Recycling and Conservation

This section describes how increases in water use efficiency, beyond those included in the baseline water supply system, will be implemented as part of the Ensure Sustainability Strategy.

8.4.1. Indirect Potable Reuse

The first phase of implementation (Phase A) for indirect potable reuse consists of continued stakeholder engagement, further study and testing of advanced treated water quality, monitoring state regulations regarding indirect and direct potable reuse, and confirming maximum brine and minimum fresh water flows that are necessary to support a healthy Bay ecosystem. The District will soon complete construction of the Silicon Valley Advanced Water Purification Center, an advanced water treatment facility that will produce up to 8 million gallons per day of highly purified recycled water. The District will use this facility to monitor and test treatment effectiveness for the proposed indirect potable reuse system. The Center will also serve as a center-piece to gain public support for use of advanced treated water in the water supply system.

The next master plan update (2016) will validate the project before making any large capital investment. Phase B through Phase E of implementation for IPR include project level planning, design, construction and operations, respectively.

One of the major risks associated with investing in indirect potable reuse is public perception. Fostering public acceptance is critical to the success of the indirect potable reuse project. Another risk is the potential for stranded assets. As purification technologies improve and more testing is completed, regulations may change to allow for direct potable reuse. If this occurs, pipelines from wastewater treatment plants to the ponds could become stranded assets. The extended implementation period helps to address these risks.

8.4.2. Water Conservation

The Ensure Sustainability strategy adds one new water conservation program: gray water reuse. In the first phase of implementation, the District will develop groundwater protection guidelines and program details. Groundwater protection guidelines will address concerns with the quality of the gray water potentially being returned to the aquifer. This rebate program will begin in about 2017, during Phase B.

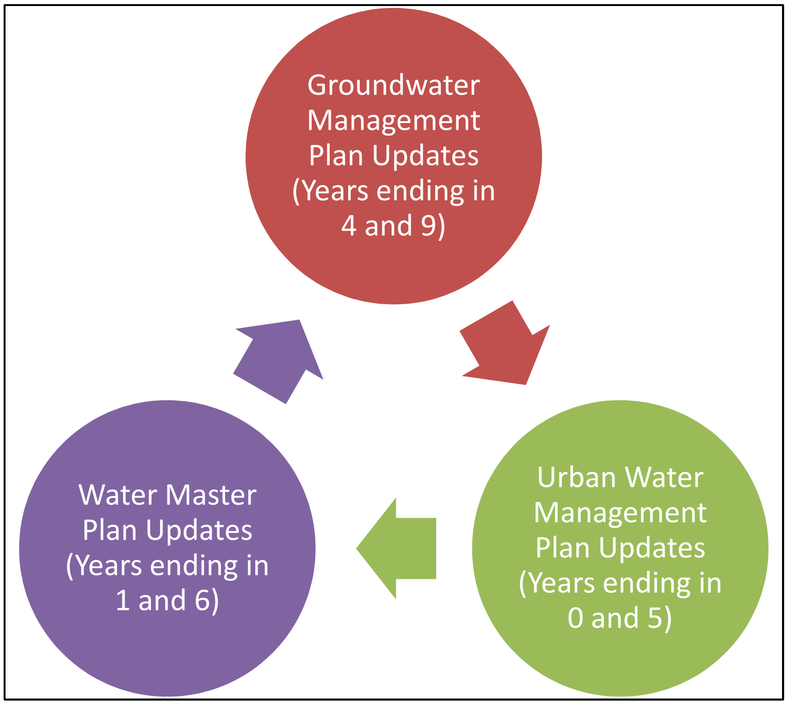
Conservation is dynamic with new technologies being developed, new implementation methods being tested, and associated costs declining. The District will continue to monitor technology and policy developments that may create new opportunities for increased conservation. The District will also to encourage land use agency efforts to implement low-impact development and monitor opportunities to increase conservation through land use policy. Developments in either of these areas may result in new conservation activities becoming feasible for future Water Master Plan updates.

8.5. Next Steps and Future Decisions

The Water Master Plan recognizes that baseline supplies and infrastructure are subject to change. Therefore, the long-term strategy will be updated every five years following preparation of the Urban Water Management Plan to capture updated supply and demand projections, as well as changes in groundwater basin management objectives. This water management planning cycle is illustrated in **Error! Reference source not found.**. The implementation plan will be reviewed annually over the next five years to ensure that the recommendations are still valid, and to ensure that all Water Master Plan projects and programs are budgeted, planned, and completed at the appropriate times. The District will report on progress annually, and will measure success using performance measures and milestones.

The Water Master Plan recognizes that completion of baseline projects and programs such as the BDCP and FAHCE implementation, and many other circumstances such as water reuse regulations, can significantly affect the Water Master Plan Strategy. Additionally, new issues will likely arise over the planning horizon. The plan will be updated every five years to address any changed and new circumstances. Periodic plan updates will allow the District to address any new or changed circumstances and to adjust its water supply strategy to fit the needs of the county in the future.

Figure 8-2. Water Management Planning Cycle


Groundwater Management Plan Updates (Years ending in 4 and 9)
Urban Water Management Plan Updates (Years ending in 0 and 5)
Water Master Plan Updates (Years ending in 1 and 6)

APPENDIX A

Water Supply System Infrastructure

Description, Capacity and Condition of Facilities

Information presented in this Appendix was compiled in 2010 and may have changed since that time, particularly for condition and planned future upgrades. This appendix is intended to assist the reader in understanding the components of the District's water supply system.

Water Master Plan - Appendix A

CANALS AND DITCHES

Canal or Ditch	System	Purpose	Canal Construction	Capacity	Condition Information	Expected Future Upgrades
Almaden-Calero	Guadalupe River Water Supply and Recharge	Conveys water from Almaden Reservoir to Calero Reservoir. Water right for 6,000 AF transfer water at Calero Reservoir	4.4 mi concrete lined canal	120 cfs	Canal is in poor condition. Does not hold baseline capacity. Leakage, seepage, drainage, landslide and maintenance road access issues.	Current capital project for canal improvements on hold until completion of dam seismic study
Vasona	Los Gatos Water Supply and Recharge	Conveys water from Vasona Reservoir to Smith Creek, the Vasona Pump Station, and San Tomas Creek. Can supply Stevens Creek Pipeline from the Vasona Valve Yard at Vasona Pump Station.	1.7 mi reinforced concrete pipe; 0.8 mi open channel	75 cfs	Canal is in poor condition and barely operational.	Current capital project will look at canal improvements as part of a comprehensive west side raw water system analysis (Stevens Creek & Vasona Raw Water Distribution)
Kirk Ditch	Los Gatos Water Supply and Recharge	Conveys water from Los Gatos Creek or the Central Pipeline (SBA source) to the Oka and McGlincey Ponds	1.9 mi open channel and pipeline	35 cfs		
Page Ditch	Los Gatos Water Supply and Recharge	Conveys water from Los Gatos Creek or the Central Pipeline (SBA source)to the Camden, Page, Sunnyoaks, and Budd ponds	2 mi natural channel	50 cfs		
Coyote	Upper Coyote Creek Water Supply and Recharge	Conveys water from a point on Coyote Creek d/s of Anderson Dam to a point on Coyote Creek u/s of Coyote Pond.	9 mi natural channel runs parallel to Coyote Creek	125 cfs		FAHCE settlement agreement may require improvements to the canal.

NOTES: Canals no longer in operation: Coyote-Alamitos, Coyote Extension, Evergreen Canal & Distribution System

Water Master Plan - Appendix A
DIVERSION DAMS

Diversion Dam	Purpose	Dam Construction	Associated Water Right Licensed Amount & Resource	Associated Infrastructure	Past Major Upgrades	Condition Information	Expected Future Upgrades
Alamitos	Diverts water from the Alamitos Creek to the Alamitos Ponds	Wood paneled flashboard dam	3,302 AF Percolation; Guadalupe Creek	Fish Ladder	Drop structure added in 1960s. Fish ladder added in 1999.	Current construction & operations pose saftey and flood risk	Current capital project to replace dam is scheduled for completion in early 2013.
Church	Diverts water from Llagas Creek to the Church Ponds	Rock/earthen diversion dam	None		Dam raised 10 ft. in 1985, added 231,000 cubic yards of material. Included seismic retrofits.	Poor Condition - not functioning	Need CIP to upgrade Diversion Dam. Assumed to be in place for future projections.
Coyote Canal Diversion	Diverts water from Coyote Creek to the Coyote Canal	Wood paneled flashboard dam	None	Fish Screen	Fish screen added in 1999		
Coyote Percolation Dam*	Stores water for recharge in Coyote Pond	Steel paneled flashboard dam, 9.5 ft. high and 110 ft. long	5,000 AF Surface Storage and Recharge; Coyote Creek	Fish Ladder	Fish ladder added in 1999	Current construction & operations pose saftey and flood risk	Current capital project to replace dam is scheduled for completion in early 2013.
Kirk	Diverts water from Los Gatos Creek to the Kirk recharge system (Kirk Ditch, Oka Ponds, and McGlincey Ponds)	Steel paneled flashboard dam	9,090 AF Underground Storage; Los Gatos Creek		Relocated in 1993	Current construction & operations pose saftey and flood risk	Current capital project to replace dam and add a fish screen is scheduled for completion in June 2012.
Masson	Diverts water from Guadalupe Creek to the Los Capitancillos Ponds	Steel paneled flashboard dam	557 AF Beneficial Use - no storage; Guadalupe River	Fish screen and ladder	Fish facilities added in 1999		
Maybury	Diverts water from Penitencia Creek to the Overfelt Gardens and Maybury Ponds	Steel paneled flashboard dam	3,500 AF Recharge; Penitencia Creek (Split with Noble Diversion)	Fish screen and ladder	Fish facilities added in 1999		
Noble	Diverts water from Penitencia Creek to the Penitencia (Bob Gross), Piedmont, Helmsley, and Capitol Ponds	Steel paneled flashboard dam	3,500 AF Recharge; Penitencia Creek (Split with Maybury Diversion)	Wier type fish ladder			
Smith			None				

*FERC Regulated Dam

Water Master Plan – Appendix A
ELECTRICAL

115 kV Facilities
- Coyote Pumping Plant

21 kV Facilities
- Anderson Hydroelectric
- SFPUC Intertie Pump Station
- Santa Teresa WTP (20,780 V)

12 kV Facilities
- Rinconada WTP (12,470 V)
- Penitencia WTP (12,470 V)
- Pacheco Pumping Plant

480 V Facilities
- Vasona Pump Station
- Graystone Pump Station
- Dutard Pump Station
- SCRWA Booster Pump Station
- San Tomas Injection Well

240 V Facilities – 3 Phase
- Anderson Hydroelectric Station
- Anderson Dam Blockhouse
- Anderson Force Main Valve Structure
- Bailey Avenue Line Valve and Turnout Valve
- Bifurcation Structure
- Calero Creek Turnout Vault
- Calero Pipeline Modulating Valve Vault
- Central Pipeline Line Valve
- Congress Junction Turnout
- Cox Reservoir Turnout
- Coyote Canal Diversion Dam and Fish Screen
- Coyote Creek Blowoff
- Coyote Discharge Line Sleeve Valve Vault
- Farndon Avenue Turnout
- Granger Avenue Turnout
- Guadalupe Creek Turnout
- Kirk Ditch Turnout
- Lower Los Gatos Creek Turnout
- McClellan Percolation Ponds Turnout
- Mountain View Line Valve Vault
- Norwood Turnout

240 V Facilities – 3 Phase, Continued
- Ocala Turnout
- Page Ditch Turnout
- Piedmont Connection Vault
- Piedmont Valve Yard Control Bldg
- Quito and Bucknall Roads Turnout
- San Bruno Line Valve
- Saratoga Creek Turnout
- Stevens Creek Turnout
- Stevens Creek Ultrasonic Flowmeter Vault
- Vasona Dam

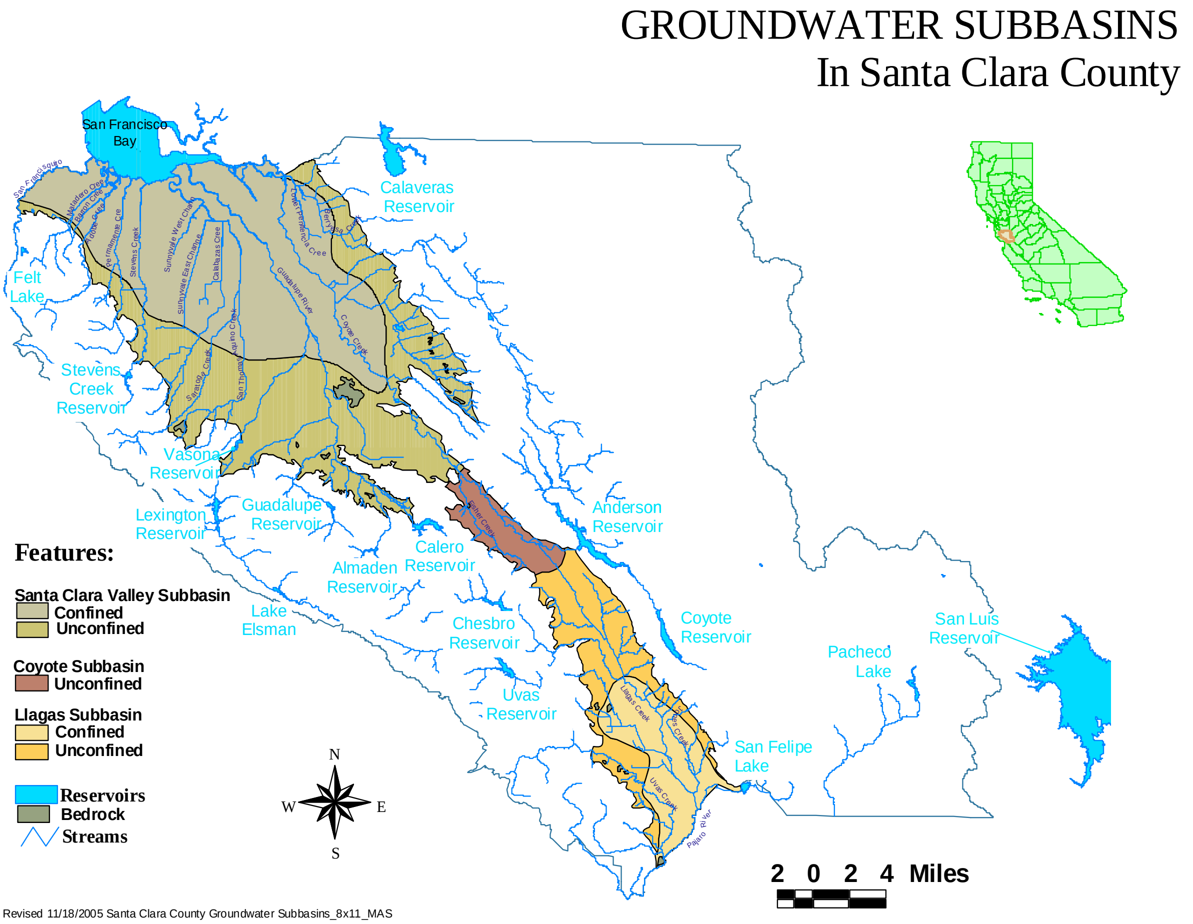
240 V Facilities – Single Phase
- Aborn Road Turnout
- Budd Avenue
- Camden Avenue Valve Vault
- Graystone Avenue Valve Vault
- Grossmont Line Valve Vault
- Mabury Turnout
- Rainbow Drive Turnout

240 V Facilities – No Panel Board
- Anderson Dam Outlet Valve (To Coyote Creek)
- Cox Line Valve
- Coyote Creek Turnout FLowmeter Vault
- Coyote Turnout
- Guadalupe Creek Fish Ladder And Fish Screen
- Ocala Line Valve
- Stevens Creek Line Valve
- West Pipeline Line Valve

Water Master Plan - Appendix A

Groundwater Subbasins

Subbasin	Operational Capacity	Brief Description
Santa Clara Plain	350,000 AF	Approximately 22 miles long, wtih a surface area of 225 square miles. The Santa Clara Plain underlies the northerly portion of the Santa Clara County and includes the majority of the streams and recharge facilities operated by the District.
Coyote	23,000 - 33,000 AF	Alluvial filled basin hydraulically connected to the Santa Clara Plain to the north, extends from Metcalf Road south to Cochrane Road, where it joins the Llagas Subbasin at a groundwater divide. The Coyote Valley is approximately seven miles long, with a surface area of approximately 15 square miles.
Llagas	150,000 - 165,000 AF	Approximately 15 miles long, three miles wide along its northern boundary, and six miles wide along the Pajaro River.



Water Master Plan - Appendix A

NATURAL CHANNELS

Creek	Source of Water (In addition to local run-off)	Sub-basin Recharged	Planned Future Upgrades
Alamitos	Almaden Reservoir, Calero Creek, Almaden Valley Pipeline (San Felipe, Anderson, or Calero sources)	Santa Clara	
Calero	Calero Reservoir	Santa Clara	
Guadalupe Creek	Guadalupe Reservoir, Almaden Valley Pipeline (San Felipe, Anderson, or Calero sources), various creek inflow	Santa Clara	
Guadalupe River	Alamitos Creek, Ross Creek, Canoas Creek	Santa Clara	Improvements to achieve 1% flood protection; Gold Street Educational Center
Ross	Almaden Valley Pipeline (San Felipe, Anderson, or Calero sources), various creek inflow	Santa Clara	
Los Gatos	Lexington Reservoir, Vasona Reservoir, various creek inflow, Central Pipeline (SBA source water)	Santa Clara	
Coyote (Lower)	Silver Creek, Thompson Creek, Upper Penitencia Creek, various other creek inflow	Santa Clara	Mid-coyote improvements to achieve 1% flood protection for
Silver	Various creek inflow	Santa Clara	Improvements to achieve 1% flood protection
Thompson	Various creek inflow	Santa Clara	Improvements for water quality, riparian habitat
Llagas	Chesbro Reservoir, East Little Llagas Creek, Uvas-Llagas Transfer Pipeline (Uvas Reservoir source) various creek inflow	Llagas	Improvements to achieve 100 yr flood protection for urban areas of Morgan Hill and 5-10yr
Uvas	Uvas Reservoir, various creek inflow	Llagas	
Coyote (Upper)	Anderson Reservoir, Coyote Pumping Plant (San Felipe Source Water), various creek inflow	Santa Clara	
Corrallitos	Tennant Creek, San Felipe	Llagas	
East Little Llagas	Madrone Channel, Corrallitos Creek	Llagas	
Tennant	San Felipe (Santa Clara Conduit T/O)	Llagas	
Penitencia	Cherry flat reservoir (City of SJ), SBA terminal tank, various creek inflow	Santa Clara	Improvements to achieve 1% flood protection
Sierra	Penitencia (Gross) Ponds	Santa Clara	

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NATURAL CHANNELS

Creek	Source of Water (In addition to local run-off)	Sub-basin Recharged	Planned Future Upgrades
Calabazas	Stevens Creek Pipeline (San Felipe, SBA, Anderson, or Calero sources), Rodeo Creek, Regnart Creek	Santa Clara	Improvements to achieve 1% flood protection, includes Bollinger Bridge
Regnart	Stevens Creek Pipeline (San Felipe, SBA, Anderson, or Calero sources)	Santa Clara	Erosion repairs and WQ improvements
Rodeo	Stevens Creek Pipeline (San Felipe, SBA, Anderson, or Calero sources)	Santa Clara	
San Tomas	Stevens Creek Pipeline or Vasona Canal (San Felipe, SBA, Anderson, Calero, Vasona sources), Wildcat Creek, Smith Creek, San Tomas Injection Well, Saratoga Creek, and Calabazas Creek	Santa Clara	Two bridge improvements for flood protection
Saratoga	Stevens Creek Pipeline (San Felipe, SBA, Anderson, or Calero sources)	Santa Clara	
Smith	Stevens Creek Pipeline (San Felipe, SBA, Anderson, or Calero sources), Vasona Canal (Vasona Reservoir source)	Santa Clara	
Stevens	Stevens Creek Reservoir, Stevens Creek Pipeline (San Felipe, SBA, Anderson, or Calero sources)	Santa Clara	
Wildcat	Stevens Creek Pipeline (San Felipe, SBA, Anderson, or Calero sources)	Santa Clara	

Water Master Plan - Appendix A
PIPELINES

Pipeline	System	Purpose	Service	Primary Material	Size	Approx Total Length (Miles)	Past Major Upgrades	Condition Information	Planned Future Upgrades	Year Complete	Expected Life (Years)	Future Turnouts
East Pipeline	East Treated Water Distribution	Distributes treated water from PWTP via the PWTP Delivery Main to SJWC and San Jose Municipal service areas in the north eastern portion of north county	Treated	WSP	33", 36", 42", 48"	6.39	1995 as part of the PEP construction, Patt Avenue Line Valve and vault were installed and a buried service valve at Aborn Turnout was added	March 2010 inspection shows pipeline is in good condition. Inspection found multiple cracks, but no major repairs were needed. Approx. 40% of pipeline could not be inspected due to thick biofilm. Ocala line valve replaced.	IRP2 Line Valves - 1 line valve proposed near piedmont valve yard to isolate pipeline in earthquake	1974	90	
Milpitas Pipeline	East Treated Water Distribution	Distributes treated water from PWTP via the PWTP Delivery Main to SJWC service areas in the north eastern portion of north county, and to the City of Milpitas service area.	Treated	WSP	42"	4.60	1999 re-alignment on Capitol between I-680 and Cropley, new pipe and line valve in this area	Has not been inspected	City has requested a second turnout for the area near the VTA and Bart Extension	1993	90	New turnout requested by City to be installed by 2013 - In TW Transmission Small Caps Project. Future Trade Zone Turnout d/s Hostetter
Parallel East Pipeline	East Treated Water Distribution	Adds capacity to the system and allows for STWTP water to be delivered north of Ocala in the event the EPL is out of service	Treated	WSP	54"	2.35		March 2010 inspection of small section of pipe near Ocala line valve - pipeline in good condition		1995	90	Future Norwood and Ocala turnouts near existing EPL turnouts
Penitencia Delivery Main	East Treated Water Distribution	Distributes treated water from PWTP to the East and Milpitas Pipelines	Treated	PCCP	66"	0.49	Penitencia Mod-Valve and vault was added in late 90s. Pipeline was rehabbed at that time.	Has not been inspected		1974	100	
Santa Teresa Tunnel	East Treated Water Distribution	Distributes treated water from STWTP to SJWC and San Jose Municipal service areas in the south eastern portion of north county	Treated	PCCP	72"	0.34		Has not been inspected; Two known leakage events; Spare PVC conduit in tunnel has failed and caused flooding in vault where conduit terminates		1989	100	
Snell Pipeline	East Treated Water Distribution	Distributes treated water from STWTP to SJWC and San Jose Municipal service areas in the south eastern portion of north county	Treated	PCCP	60", 66", 72"	8.51		Has not been inspected	IRP2 Line Valves - 1 line valve proposed near Skyway Turnout to isolate pipeline following earthquake	1989	100	Future 18" between Pinos and Skyway turnouts
Alamitos Pipeline	Guadalupe River Water Supply and Recharge	Distributes water from the Los Capitancillos Ponds to the Alamitos Ponds	Raw	RCCP	24"	0.17	Extended by 450 ft. in 1970			1964	90	
Almaden Valley Pipeline	Guadalupe River Water Supply and Recharge	Distributes raw water from Calero Pipeline or Calero Reservoir to the Santa Teresa Water Treatment Plant, to Vasona Valve Yard/Rinconada Force Main, or to recharge	Raw	PCCP	72", 78"	12.25		Pipeline is in good condition for pipe of its age. 2007/2008 inspections found leak in 1 pipe , scheduled for repair in Jan 2011. 80 total distressed of 1886 pipes inspected = 4.2%. Section from Santa Teresa Force Main (454+83) to Coleman Line Valve (271+50) has not been inspected.		1974	100	
Calero Pipeline	Guadalupe River Water Supply and Recharge	Distributes raw water from the Cross Valley Pipeline to the Almaden Valley Pipeline, bypassing Calero Reservoir	Raw	PCCP	78"	2.62		Has not been inspected		1990	100	
Calero Standpipe	Guadalupe River Water Supply and Recharge	Standpipe at start of Calero Pipeline to maintain pressure in the pipeline	Raw	WSP	54"	0.16		Has not been inspected		1990	75	
Guadalupe Pipeline	Guadalupe River Water Supply and Recharge	Distributes water from the Alamitos Ponds to the Guadalupe Ponds	Raw	RCCP	30" - 18"	1.08	Partially re-located at Guadalupe River in 1997			1993	90	
Kooser Pipeline	Guadalupe River Water Supply and Recharge	Distributes water from the Almaden Valley Pipeline to the Kooser Ponds	Raw									
Masson Pipeline	Guadalupe River Water Supply and Recharge	Distributes water from the Masson Diversion on Guadalupe Creek to the Guadalupe Water Treatment Facilities and Los Capitancillos Ponds	Raw	RCCP	30"	0.25				1964	90	
Meridian Pipeline	Guadalupe River Water Supply and Recharge	Distributes water from the U/S Los Capitancillos Ponds to the D/S Los Capitancillos Ponds	Raw	RCCP	27"	0.22				1964	90	
Santa Teresa Force Main	Guadalupe River Water Supply and Recharge	Distributes raw water from the Almaden Valley Pipeline (San Felipe Division, Anderson, or Calero Sources) to the STWTP	Raw	PCCP	78"	0.41		January 2008 inspection found pipeline to be in excellent condition with no distressed pipes		1989	100	

Pipeline	System	Purpose	Service	Primary Material	Size	Approx Total Length (Miles)	Past Major Upgrades	Condition Information	Planned Future Upgrades	Year Complete	Expected Life (Years)	Future Turnouts
Central Pipeline	Los Gatos Water Supply and Recharge	Distributes raw water from the South Bay Aqueduct to recharge and the Vasona Valve Yard	Raw	PCCP	66"	12.64	Pipeline has undergone two relocations near Guadalupe Line Valve as part of flood control projects (HWY 87)	Pipeline is in good condition for pipe of its age. 2005 inspections found 59 total distressed pipes of 2066 inspected = 2.86%. One additional pipe became distressed and three had additional wire breaks since 2001 inspection. Total 4.6 of 13.1 miles not yet inspected. Relocation at HWY87 was inspected in 2004 due to concerns that contractor hit the line, but no damage found.		1965	100	
Rinconada Force Main	Los Gatos Water Supply and Recharge	Distributes raw water from Vasona Valve Yard to the RWTP and irrigation	Raw	WSP	72"	1.62	Mid 90s, pipeline was re-aligned to accommodate HWY 85, New vault was added at Wedgewood Dr.	Pipeline is in good condition. December 2005 inspection found areas with spalling and cracking, which were repaired.		1966	90	
Sunnyoaks Pipeline	Los Gatos Water Supply and Recharge	Distributes water from the Page Ditch to the Sunnyoaks and Budd Ponds	Raw	WSP	24"	0.47				1963	90	
Uvas-Llagas Transfer Pipeline	Lower Llagas Water Supply and Recharge	Distributes water from Uvas Reservoir to Llagas Creek for recharge	Raw	RCCP	36"	3.33				1957	90	
Pacheco Conduit Sec. 1 & 2	San Felipe Division Imported Water	Distributes raw water from the Pacheco Tunnel Reach 2 (San Luis Reservoir source water) to the Santa Clara and Hollister Conduits	Raw	PCCP	120"	7.91		Pipeline is in good condition. Dec 2007 inspection found 12 total distressed of 1407 pipes inspected = 0.85%. Portions of pipeline could not be inspected due to high water or poor air quality. Potential for 8 additional distressed pipes in uninspected sections.		1985	100	
Pacheco Tunnel Reach 1	San Felipe Division Imported Water	Distributes raw water from the San Luis Reservoir intake structures to the Pacheco Pump Station	Raw	Reinfor. Concrt Tunnel	156"	1.83		Portion of tunnel was inspected in 2007, approximately PPP to tunnel island		1968	90	
Pacheco Tunnel Reach 2	San Felipe Division Imported Water	Distributes raw water from the Pacheco Pump Station (San Luis Reservoir source water) to the Pacheco Conduit	Raw	Reinfor. Concrt Tunnel	114"	5.22		Known leakage in tunnel		1984	90	
Santa Clara Conduit	San Felipe Division Imported Water	Distributes water from the Pacheco Conduit (San Luis Reservoir source water) to the Coyote Pumping Plant	Raw	PCCP	96"	23.52		Pipeline is in good condition. March 2009 inspection found 31 total distressed pipes of 2250 inspected = 1.38%. None in Calaveras fault crossing section were distressed. Sections that have not yet been inspected include 0+00 (BIF) to 47+98 (partial tunnel) and 219+73 (Sectionalizing Valve #1) to 386+20 (CPP).		1985	100	5 Future Turnout Locations - Watsonville to Pajaro Valley 1.5 mi d/s fault crossing, Furlong Ave u/s SV-1, Future 42" near SV-2, Future 36" and Future 42" u/s Maple
Santa Clara Tunnel	San Felipe Division Imported Water	Distributes water from the Pacheco Conduit (San Luis Reservoir source water) to the Coyote Pumping Plant	Raw	Reinfor. Concrt Tunnel	117"	0.96	2002 landslide repair at tunnel	Known leakage in tunnel, not determined to be the cause of the landslide		1985	90	
Gilroy Reclamation Pipeline	South County Recycled Water	Distributes water from the South County Regional Wastewater Authority Treatment Plant to customers	Reclaimed	WSP	12"	8.75	3,000 feet added as part of South County Recycled Water Master Plan (SCRWMP) Immediate Term Projects	Pipeline has experienced several leaks associated with recent construction and installation issues. 2009 Cathodic protection system inspection shows system is functioning acceptably.	7.5 miles to be added as part of short-term projects and 2.5 miles to be added as part of long-term projects in SCRWMP	1978	60	13 service connections to be added as part of SCRWMP
Anderson Force Main	Upper Coyote Creek Water Supply and Recharge	Distributes raw water to Anderson Reservoir from the Coyote Pump Station or from Anderson Reservoir to the Coyote Pump Station or Cross Valley Pipeline	Raw	RCCP	54"	0.81		Has not been inspected		1984	90	
Cross Valley Pipeline	Upper Coyote Creek Water Supply and Recharge	Distributes raw water from Coyote Pump Station or Anderson Force Main to the Calero Pipeline	Raw	PCCP	78"	8.13	Most threaded connections were replaced in 2004/05 due to severe corrosion	Has not been inspected but has known corrosion issues. Pipeline had several threaded connection leaks after a relatively short life of 10-15 years		1987	100	
Madrone Pipeline	Upper Llagas Water Supply and Recharge	Distributes raw water from the San Felipe Division to the Madrone Channel for recharge	Raw	RCCP	24"	2.00		Pipeline is in poor condition. Capital project to repair PL will be completed in March 2012.	Main/Madrone Repair/Replacement project to be completed in 2012	2012	90	
Main Avenue Pipeline	Upper Llagas Water Supply and Recharge Systems	Distributes raw water from Anderson Reservoir and San Felipe Division to the Main Avenue Ponds for recharge	Raw	WSP	16", 24"	2.03		Pipeline is in poor condition. Section from Anderson to Santa Clara Conduit is not operational. Capital project to repair PL will be completed in March 2012.	Main/Madrone Repair/Replacement project to be completed in 2012	2012	75	

Water Master Plan - Appendix A

PIPELINES

Pipeline	System	Purpose	Service	Primary Material	Size	Approx Total Length (Miles)	Past Major Upgrades	Condition Information	Planned Future Upgrades	Year Complete	Expected Life (Years)	Future Turnouts
Helmsley Pipeline	Upper Penitencia Creek Water Supply and Recharge	Distributes water from Piedmont Ponds to Helmsley and Upper Capitol Ponds	Raw							1964	90	
Penitencia Force Main	Upper Penitencia Creek Water Supply and Recharge	Distributes raw water from the South Bay Aqueduct (Imported SWP source) to the SBA terminal tank or PWTP	Raw	PCCP	66"	0.52		Has not been inspected		1974	100	
San Tomas Pipeline	West Side and Stevens Creek Water Supply and Recharge	Distributes water from the Campbell Distributary to the San Tomas Injection Well	Treated	PVC	12"	0.33				1999	75	
Stevens Creek Pipeline	West Side and Stevens Creek Water Supply and Recharge	Distributes raw water from the Rinconada Force Main/Vasona Valve Yard to recharge on the west side of the county	Raw	WSP	30", 36"	7.8	In past 15 years, 2 sections have been replaced: behind school on Pollard & just d/s of Quito	Has not been inspected; Known to have accelerated corrosion issues. ARVs replaced in late 90s failed in 2004.	Stevens Creek Vasona Raw Water Distribution study may result in upgrades or changes to the pipeline.	1966	75	
Sunnyvale Distributary	West Treated Water Distribution	Distributes treated water from RWTP via the West Pipeline to the Cal Water Los Altos service area and to the City of Sunnyvale service area	Treated	WSP	33"	0.46		December 2008 video inspection found minor cracking. No repairs were made. Pipeline is in good condition.		1967	75	
West Pipeline	WestTreated Water Distribution	Distributes treated water from RWTP to treated water contractors on the west side of the county	Treated	WSP	30", 33", 48", 54", 66", 78", 84"	9.17		RWTP to Cox turnout was inspected in 2004, several areas with mortar lining cracks and breaks were found and repaired. Severely corroded appurtenances were replaced. Remainder was inspected in November 2009. Several areas with mortar lining cracks and breaks were found and repaired. One area with deteriorated lining & rust near Rainbow TO could not be repaired in the time allowed for shutdown.	IRP2 Line Valves - 2 line valves proposed to isolate the Monte Vista Fault Zone; 1 u/s of Santa Clara Distributary junction and 1 u/s of Mann Turnout	1967	90	Side outlet between Mann & Rainbow
Campbell Distributary	West Treated Water Distribution	Distributes treated water from RWTP to SJWC service area or the San Tomas Injection Well for recharge via the West Pipeline and the Santa Clara Distributary	Treated	WSP	20"	2.07	2.07	2004 shutdown included replacement of corroded appurtenances.		1967	75	
Mountain View Distributary	West Treated Water Distribution	Distributes treated water from RWTP via the West Pipeline to the Cal Water Los Altos service area and to the City of Mountain View service area	Treated	WSP	24"	1.15		Has not been inspected		1990	75	
Santa Clara Distributary	West Treated Water Distribution	Distributes treated water from RWTP via the West Pipeline to the Cal Water Cupertino/Santa Clara service area and to the City of Santa Clara service area	Treated	WSP	30", 36"	4.12		2004 inspection for damage due to overgrowth of trees. Pipeline was in acceptable condition. 2004 shutdown included replacement of corroded appurtenances		1967	75	City of Santa Clara requested a new turnout to help with their system pressures. Request was not carried forward.

NOTES:

CIPs for all Pipelines:	Cathodic Protection (broken into USBR vs. District owned) - project may increase life of pipelines, if system is maintained Pipeline Hydraulic Reliability analysis - project is starting off by creating accurate GIS coverage and updated model. Per results of inspections to date, surge analysis is needed on all District pipelines (POTENTIAL) Sea Level Rise flood protection of vaults, turnouts, etc.
No Longer In-Service:	Half Road Pipeline and Irrigation System
Tunnels:	Have known leakage, but tunnels by nature leak. Leakage may need to be addressed sometime before 2040.
Pipes Not Included:	Dam outlet pipes are included with Dam infrastructure summary Pond inlet & outlet pipes are included with Pond infrastructure summary
Pipeline Locations:	Attached for several pipelines

Water Master Plan - Appendix A

PIPELINE LOCATIONS

Pipeline	Major Features or Turnouts and Approximate Location	Description	Elevation (ft.)	Distance to D/S Feature (mi)	Size D/S of Feature	To Retailer	To Recharge or Env. Release
Almaden Valley Pipeline	Calero Reservoir (647+45)	Raw water from Calero Reservoir	390.9	0.12	48"		
	Calero Creek Turnout (640+96)	To Calero Creek for recharge	385.4	0.02	48"		X
	Transition to 78" Pipe (640+07)	Size transition	385.5	0.01	78"		
	Calero Pipeline Junction (639+53)	Junction with Calero Pipeline - raw water from San Felipe Division or Anderson Reservoir	384.3	2.57	78"		
	Shannon Line Valve (503+66)	Control flow or isolate pipeline	303.3	0.92	78"		
	Santa Teresa Force Main Junction (454+83)	Raw water to Santa Teresa WTP	267.7	2.19	72"		
	Alamitos Creek Turnout (339+20)	To Alamitos Creek, Alamitos and Guadalupe Ponds for recharge	209	1.28	72"		X
	Coleman Line Valve (271+50)	Control flow or isolate pipeline	245.7	0.32	72"		
	Guadalupe Creek Turnout (254+36)	To Guadalupe Creek, Los Capitancillos, Alamitos, and Guadalupe Ponds for recharge	256	0.48	72"		X
	Kooser Ponds Turnout (228+82)	To Kooser Ponds for recharge	249	2.20	72"		X
	Ross Creek Turnout (112+62)	To Ross Creek for recharge	276	2.13	72"		X
	Vasona Pump Station (0+00)	To RWTP via Rinconada Force Main or Stevens Creek PL	261	end	end		
Anderson Force Main	Anderson Reservoir (21+99)	Raw water to/from Anderson Reservoir	569.9	0.00	54"		
	Coyote Creek Turnout (22+19)	To Coyote Creek for recharge	400.8	0.01	54"		X
	Anderson Hydroelectric Turnout (22+59)	To Hydroelectric Plant	396	0.79	54"		
	Cross Valley Pipeline Junction (64+55)	To Cross Valley Pipeline	404	end	end		
Calero Pipeline	Cross Valley Pipeline Junction (10+00)	Raw water from Cross Valley Pipeline (San Felipe Division or Anderson Reservoir) to bypass Calero Reservoir	537	0.61	78"		
	Bailey Ave Line Valve (41+97)	Control flow or isolate pipeline	517	2.00	78"		
	Calero Mod Valve (147+58)	Controls d/s pressure	384.3	0.02	78"		
	Almaden Valley Pipeline Junction (148+45)	To Almaden Valley Pipeline	384.3	end	end		
Campbell Distributary	Junction with Santa Clara Distributary, Line Valve (0+00)	Treated water from RWTP; Line valve to isolate pipeline	255.18	1.80	20"		
	San Tomas Injection Well Outlet (94+78)	Treated water to injection well for recharge	191.41	0.26	20"		
	Campbell Turnout (5+31)	Treated water turnout to SJWC service area	186.4	end	end	X	
Central Pipeline	Piedmont Valve Yard (-0+82)	Raw water from SBA	185	2.95	66"		
	Coyote Creek Blowoff (154+85)	To Coyote Creek for recharge	56	2.24	66"		X
	Guadalupe Line Valve (273+24)	Control flow or isolate pipeline	56	4.74	66"		
	Los Gatos Creek Turnout (523+70)	To Lower Los Gatos Creek for recharge	180	2.32	66"		X
	Page Ditch Turnout (646+00)	To Page System for recharge: Page Ditch, Camden, Page, Sunnyoaks, Budd Ponds	247	0.20	66"		X
	Kirk Ditch Turnout (656+58)	To Kirk System for Recharge: Kirk Ditch, Oka, McGlincey Ponds	241	0.19	66"		X
	Vasona Pump Station (666+47)	To RWTP via Rinconada Force Main or Stevens Creek PL	261	end	end		
Cross Valley Pipeline	Peet Road Junction (101+54)	Raw water from San Felipe Division or Anderson Reservoir at Coyote Pumping Plant	392.7	1.29	78"		
	Cochran Line Valve (169+42)	Control flow or isolate pipeline	348	2.89	78"		
	San Bruno Line Valve (322+30)	Control flow or isolate pipeline	289.5	2.93	78"		
	Calero Pipeline Junction(477+00)	To Calero Pipeline	537	end	end		

Water Master Plan - Appendix A
PIPELINE LOCATIONS

Pipeline	Major Features or Turnouts and Approximate Location	Description	Elevation (ft.)	Distance to D/S Feature (mi)	Size D/S of Feature	To Retailer	To Recharge or Env. Release
East Pipeline	Junction with Penitencia Delivery Main (14+65)	Treated water from PWTP	192.53	0.72	48"		
	Mabury Turnout (52+43)	Treated water turnout to SJWC service area	186.43	0.44	48"	X	
	Patt Ave Line Valve (75+54)	Isolate pipeline	172.5	1.09	48"		
	Alum Rock Turnout (133+20)	Treated water turnout to SJWC service area	137.93	1.86	42"	X	
	Ocala Line Valve (231+50)	Isolate pipeline	126.18	0.00	36"		
	Ocala Turnout (231+62)	Treated water turnout to SJWC service area	126.18	1.25	36"	X	
	Norwood Turnout (297+62)	Treated water turnout to San Jose Municipal Service Area	138.13	1.02	33"	X	
	Aborn Turnout (351+48)	Treated water turnout to San Jose Municipal Service Area	191.56	0.00	33"	X	
	Junction with Snell Pipeline (351+55)	End East Pipeline; Treated Water from STWTP	191.5	end	end		
Milpitas Pipeline	Junction with Penitencia Delivery Main (8+95)	Treated water from PWTP	192.53	1.69	42"		
	Hostetter Turnout (98+06)	Treated water turnout to SJWC service area	110.58	1.21	42"	X	
	Future Trade Zone Turnout (162+01)	Future treated water turnout for City of Milpitas	55.68	1.53	42"	future	
	End Milpitas PL I (242+90)	Junction with 190 ft. extension of Milpitas PL	10.43	0.04	42"		
	Milpitas Turnout (244+80)	Treated water turnout to City of Milpitas	10.05	end	end	X	
Mountain View Distributary	Junction with West Pipeline, Line Valve (10+52)	Treated water from RWTP; Line valve to isolate pipeline	235	0.65	24"		
	Portland Avenue Turnout (45+10)	Treated water turnout to Cal Water Service Area	193.86	0.35	24"	X	
	Covington Road Turnout (63+59)	Treated water turnout to Cal Water Service Area	168	0.14	24"	X	
	Mountain View Turnout (71+13)	Treated water turnout to City of Mountain View Service Area	156	end	end	X	
Pacheco Tunnel Reach 2 and Conduit Sections 1 and 2	Pacheco Pump Station (206+10), Start of Pacheco Tunnel (feet)	Federal (CVP) imported raw water source from San Luis Reservoir	571.5	5.22	114"		
	End Pacheco Tunnel & Sectionalizing Valve (481+95) (feet)	End of tunnel	576.5	7.93	120"		
	Bifurcation Structure (132+40) (meters)	To Santa Clara Conduit and Hollister Conduit to San Benito County	261.4	end	end		
Parallel East Pipeline	Parallel East Pipeline Isolation Valve at Snell (10+49)	Isolation valve; junction with Snell Pipeline	126.18	2.34	54"		
	Parallel East Pipeline Isolation Valve at East Pipeline Ocala (134+03)	Isolation valve; junction with East Pipeline	191.5	end	end		
Rinconada Force Main	Vasona Pump Station (0+30)	Raw water supply from Central Pipeline (SBA) or Almaden Valley Pipeline (San Felipe Division, Anderson, or Calero)	261	1.01	72"		
	Stevens Creek Pipeline Junction (53+45)	Junction with Stevens Creek Raw Water Distribution	264	0.46	72"		
	Rinconada Water Treatment Plant (77+50)	Supply to RWTP	420.2	end	end		
Santa Clara Conduit & Tunnel	Bifurcation Structure (3+63)	Junction with Hollister Conduit to San Benito County	261.4	0.72	96"		
	Tunnel Inlet (15+18)	Tunnel through pacheco pass	543.9	0.96	96"		
	Tunnel Outlet (30+71)	Tunnel end	538.8	3.09	96"		
	Calaveras Fault Crossing Inlet (80+47)	Line splits to (2) 66" pipes over fault	137.8	0.44	66"		
	Calaveras Fault Crossing Outlet (87+60)	Line rejoins to (1) 96" pipe	133	8.21	96"		
	Sectionalizing Valve #1 (219+75)	Control flow or isolate pipeline	191.9	5.08	96"		
	Sectionalizing Valve #2 (301+53)	Control flow or isolate pipeline	338.9	3.49	96"		
	San Pedro/Tennant Turnout (357+70)	To recharge via San Pedro Ponds and Madrone Channel or to Tennant Creek	345.6	1.39	96"		X
	Main Avenue Turnout (380+08)	To recharge or irrigation via Main Avenue Pipeline and Ponds	380	0.38	96"		X
	Madrone Turnout (386+20)	To recharge via Madrone Pipeline and Channel	392.7	end	end		X

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PIPELINE LOCATIONS

Pipeline	Major Features or Turnouts and Approximate Location	Description	Elevation (ft.)	Distance to D/S Feature (mi)	Size D/S of Feature	To Retailer	To Recharge or Env. Release
Santa Clara Distributary	Junction with West Pipeline, Line Valve (0+00)	Treated water from RWTP; Line valve to isolate pipeline	272.34	unk	36"		
	Campbell Distributary Junction (47+28)	Junction with Campbell Distributary	255.18	unk	36"		
	Bucknall Line Valve (48+36)	Isolate pipeline u/s of Campbell Distributary	255	unk	36"		
	Valco Turnout (38+41)	Turnout to Cal Water Service Area	250.62	end	end	X	
	Santa Clara Turnout (38+41)	Turnout to City of Santa Clara	250.62	end	end	X	
Snell Pipeline	STWTP outlet connection (0+0)	Treated water from STWTP	160.17	3.95	72"		
	Pinos Turnout (208+70)	Treated water turnout to SJWC service area	157.23	1.04	66"	X	
	Skyway Turnout (263+49)	Treated water turnout to SJWC service area	153.38	1.89	60"	X	
	Coyote Creek Line Valve (363+13)	Isolate pipeline	160	1.29	60"		
	Silver Creek Turnout (431+33)	Treated water turnout to San Jose Municipal Service Area	152	1.40	60"	X	
	Thompson Creek Line Valve (505+00)	Isolate Pipeline u/s of East Pipeline	191.5	0.19	60"		
	Parallel East Pipeline Junction (514+90)	Junction with Parallel East Pipeline	191.5	0.00	33"		
	East Pipeline Junction (515+06)	Junction with East Pipeline, end of Snell	191.5	end	end		
Stevens Creek Pipeline	Rinconada Force Main Junction & Valve	Raw water supply from Rinconada Force Main (SBA, San Felipe Division, Anderson, or Calero)	264	0.01	36"		
	Station 10 Manhole	Manhole	264	0.36	36"		
	Smith Creek Blowoff	To recharge via Smith Creek	243.5	0.70	36"		X
	San Tomas Creek Blowoff	To recharge via San Tomas Creek	269	0.12	30"		X
	Wildcat Creek Blowoff	To recharge via Wildcat Creek	264	1.34	30"		X
	Saratoga Creek Turnout	To recharge via Saratoga Creek	312	1.13	33"		X
	Rodeo Creek Blowoff	To recharge via Rodeo Creek	308	3.44	30"		X
	Calabazas Creek Blowoff	To recharge via Calabazas Creek	315	1.07	30"		X
	Regnart Creek Blowoff	To recharge via Regnart Creek	345	0.81	30"		X
	McClellan Turnout	To recharge via McClellan Ponds	329	0.81	30"		X
	Stevens Creek Blowoff	To recharge via Stevens Creek	288	end	end		X
Sunnyvale Distributary	Junction with West Pipeline, Line Valve (0+00)	Treated water from RWTP; Line valve to isolate pipeline	269.8	0.14	33"		
	Barranca Turnout (7+18)	Treated water turnout to Cal Water Service Area	254.84	0.33	33"	X	
	Sunnyvale Turnout (24+37)	Treated water turnout to City of Sunnyvale	286.56	end	end	X	
West Pipeline	More Avenue (0+00)	Treated water supply from RWTP	441.4	1.14	84"		
	Santa Clara Distributary Junction (60+03)	Junction with Santa Clara Distributary	272.34	0.87	78"		
	Congress Turnout (105+80)	Treated water turnout to SJWC Service Area	313.92	0.80	66"	X	
	Cox Turnout (148+03)	Treated water turnout to SJWC Service Area	324.16	0.01	66"	X	
	Cox Line Valve (148+44)	Isolate pipeline	318.3	1.98	54"		
	Rainbow Turnout (252+87)	Treated water turnout to SJWC Service Area	344.2	1.60	48"	X	
	Size Transition (337+26)	Transition to smaller pipe	315.09	0.53	36"		
	Mann Turnout (365+00)	Treated water turnout to SJWC (Cupertino) Service Area	300.2	0.42	36"	X	
	Peninsular Line Valve (387+00)	Isolate pipeline d/s of Sunnyvale Distributary	272.45	0.12	36"		
	Sunnyvale Distributary Junction (393+21)	Junction with Sunnyvale Distributary	269.8	0.48	36"		
	Farndon Turnout (418+47)	Treated water turnout to Cal Water Service Area	249.5	1.20	30"	X	
	Granger Turnout (481+88)	Treated water turnout to Cal Water Service Area	232	0.04	24"	X	
	Mountain View Distributary Junction (484+10)	Junction with Mountain View Distributary	235	end	end		

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PONDS

Pond	Source of Water	Sub-basin Recharged	Size	Recharge Capacity (AF/Y)	Past Major Upgrades	Current Condition	Planned Future Upgrades	Year Complete
Alamitos	Guadalupe & Alamitos Creeks; Almaden Valley Pipeline (San Felipe, Anderson, or Calero Source)	Santa Clara	2 ponds; 11 Acres; avg 5 ft. deep	1,460	Reconstructed in 1963			1932
Budd	Los Gatos Creek or Central Pipeline (SBA Source) via Page Ditch and Sunnyoaks Pipeline	Santa Clara	3 ponds; 9 Acres; avg 11 ft. deep	4,976				1967
Camden	Los Gatos Creek or Central Pipeline (SBA Source) via Page Ditch	Santa Clara	3 ponds; 62 Acres; large pond avg 17 ft. deep; 2 smaller pond avg 6 ft. deep	2,190				1962
Capitol	Penitencia Creek via Helmsley Pipeline and Pond	Santa Clara	7 narrow linear ponds formed by check dams	Included in Penitencia Total				1964
Church	Chesbro and Uvas Reservoirs via Llagas Creek	Llagas	3 ponds; 42 Acres; avg 17 ft. deep	7,300				1978
Coyote	Coyote Creek (San Felipe or Anderson Source)	Santa Clara	1 pond; 30 Acres; avg 5 ft. deep	10,950				1934
Ford Road	Coyote Creek (San Felipe or Anderson Source)	Santa Clara	4 ponds; 34 Acres; avg 5 ft. deep	Included in Coyote Total				1964
Guadalupe	Guadalupe & Alamitos Creeks; Almaden Valley Pipeline (San Felipe, Anderson, or Calero Source)	Santa Clara	4 ponds; 31 Acres; avg 14 ft. deep	6,570				1967
Helmsley	Penitencia Creek via Helmsley Pipeline	Santa Clara	1 pond; 1.1 Acres	Included in Penitencia Total				1964
Kooser	Almaden Valley Pipeline (San Felipe, Anderson, or Calero Source) via Kooser Pipeline	Santa Clara	4 ponds; 2 Acres; avg 9 ft. deep	1,744				1962
Los Capitancillos	Guadalupe Creek; Almaden Valley Pipeline (San Felipe, Anderson, or Calero Source) via Masson Pipeline	Santa Clara	10 ponds; 63 Acres; avg 5-10 ft. deep	2,920	Reconstructed in 1964			1962
Madrone Channel	San Felipe via Madrone Pipeline	Santa Clara	Excavated Channel with 10 dams avg 3 ft. deep; 6.5 Acres	10,050				1975
Main Avenue	San Felipe or Anderson via Main Avenue Pipeline	Llagas	5 ponds; 6 Acres; avg 4 ft deep	2,700	Reconstructed in 1961			1955
Maybury	Penitencia Creek via Maybury Diversion	Santa Clara	1 pond; 1.2 Acres	Included in Penitencia Total		Recharge capability of pond is questionable and being studied.	District may stop using the pond for recharge based on study results.	1964
McClellan	Stevens Creek Pipeline (San Felipe, SBA, Anderson, or Calero sources)	Santa Clara	2 ponds; 2.5 Acres; avg 13 ft. deep	1,744				1976

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PONDS

Pond	Source of Water	Sub-basin Recharged	Size	Recharge Capacity (AF/Y)	Past Major Upgrades	Current Condition	Planned Future Upgrades	Year Complete
McGlincey	Los Gatos Creek or Central Pipeline (SBA Source) via Kirk Ditch	Santa Clara	6 ponds; 7 Acres; avg 7 ft. deep	7,677				1959
Oka Lane	Los Gatos Creek or Central Pipeline (SBA Source) via Kirk Ditch	Santa Clara	3 ponds; 17 Acres; large pond avg 12 ft. deep; 2 smaller ponds avg 6 ft. deep	1,460				1958
Overfelt Gardens	Penitencia Creek via Maybury Pond	Santa Clara	4 ponds; 6 acres; avg 13 ft. deep	1,460		Recharge capability of pond is questionable and being studied.	District may stop using the pond for recharge based on study results.	1976
Page	Los Gatos Creek or Central Pipeline (SBA Source) via Page Ditch	Santa Clara	8 ponds; 14 Acres; avg 10 ft. deep	5,281	Reconstructed in 1961 and 1964			1935
Penitencia (Gross)	Penitencia Creek via Noble Diversion; SBA terminal tank overflow	Santa Clara	4 ponds; 20 Acres; avg 7 ft. deep	3,115	Reconstructed in 1964	Pond 1A needs fish screen on outlet pipe	Current capital project to install fish screen expected completion in June 2012	1958
Piedmont	Penitencia Creek via Penitencia (Gross) Ponds	Santa Clara	4 ponds	Included in Penitencia Total				1964
San Pedro	San Felipe via Santa Clara Conduit	Llagas	7 ponds; 20 Acres; avg 16 ft. deep	4,745				1996
Sunnyoaks	Los Gatos Creek or Central Pipeline (SBA Source) via Page Ditch and Sunnyoaks Pipeline	Santa Clara	4 ponds; 3 Acres; avg 9 ft. deep	2,224				1967

PUMPING PLANTS

Plant	System	Purpose	Capacity	Associated Systems/Facilities	Past Major Upgrades	Current Condition	Planned Future Upgrades	Year Constructed
Pacheco	San Felipe Division	Lifts water from San Luis Reservoir into the Pacheco Tunnel for distribution to San Benito and Santa Clara Counties	Twelve 2,000 hp variable speed vertical turbine pumps; 301,055 gpm or 360 MGD design capacity	Building, surface roads, overhead cranes, regulating tank, HVAC, Sump Pumps	Regulating Tank was re-coated in 2009; Pumps are continually re-built	No Issues	Current CIP to upgrade ASD drives and associated equipment; Pump replacements will begin in approximately 2035: Current cost for pump & motor is about $1.55M each ($18.6M equipment cost for all pumps); Regulating Tank re-coating in 2024 and replacement in 2049; Eventually Ops building will require major rehab; Electrical substation replacement in 2027	
Coyote	San Felipe Division	Lifts water from the San Felipe Division (San Luis Reservoir via Pacheco and Santa Clara Tunnels and Conduits) or into or from Anderson Reservoir for distribution through the Cross Valley Pipeline; Not always needed as system typically flows by gravity.	Six 2,000 Hp variable speed centrifugal pumps; 153,492 gpm or 184 MGD design capacity	Building, surface roads, fuel island, hydraulic press, HVAC	IRP spare pipe stored here, as well as other buried spare pipe.	Grounds are littered with spare parts from several projects.	Possible ASD replacement; Electrical substation replacement in 2022; Eventually Ops building will require major rehab	
Vasona	West Side and Stevens Creek Supply and Recharge	Lifts water from the Central Pipeline (SBA) or Almaden Valley Pipeline (San Felipe, Anderson, or Calero Sources) to the Rinconada Force Main for treatment at RWTP, or to the Stevens Creek Pipeline for recharge. Can also pump water to the Central or Almaden Valley Pipelines. Not always needed as system typically flows by gravity.	Two 200 Hp and two 400 HP electric driven horizontal centrifugal pumps, 72,000gpm or 86 MGD design capacity	Buildings, surface roads, meter shop, bridge crane	Meter shop restrooms added in 2000s; Electrical systems recently upgraded	Pumps are in poor condition, beyond re-buildable stage; Pump station and meter shop buildings may require seismic upgrades	Pumps need to be replaced ASAP, but first determine future capacity needs - dependent on RWTP or West PL expansion, Stevens Creek/Vasona Study, and indirect potable re-use planning	
Dutard	East Treated Water	Pumps water from PWTP to San Jose Water Company's System (operated by SJWC). Boosts water pressure during peak service hours.	Two 25 Hp Pumps, 4,000 gpm or 4.8 MGD design capacity	n/a	Pumps and electrical systems recently upgraded	No Issues	Ops building will eventually require rehab	
Graystone	East Treated Water	Pumps water from STWTP to San Jose Water Company's System (operated by SJWC). Boosts water pressure during peak service hours to feed the Graystone Pipeline	Two 200 Hp variable speed turbine pumps, 27,760 gpm or 33 MGD design capacity	n/a	Pumps recently upgraded	No Issues	Ops building will eventually require rehab	
Anderson Hydroelectric	Upper Coyote Creek Supply and Recharge	Hydroelectric facility near the base of Anderson Dam where water from the reservoir powers two 50 kW turbines to generate energy. Facility is rarely used, but in the future the District may be able to sell energy to PG&E as a 'clean' energy source.		Two generators, turbines, discharge vault and valves	Turbines have been re-built multiple times since original construction, most recently in 2010. This is linked to the over speeding issues. ($60k + each turbine)	District is not able to regulate influent to the turbines due to a faulty manual buried butterfly valve that is used to control flow. When inflow is not controlled, the turbines over-speed and fail. Floor slope has caused poor drainage and resulted in expedited corrosion.	Overall facility is in need of re-coating, which may include lead abatement. Building will eventually require rehab.	1989

Water Master Plan - Appendix A
RECHARGE TREATMENT FACILITIES

Treatment Facility	System	Purpose	Description of Facilities/Process	Associated Infrastructure	Condition Information	Year Complete
Kirk	Los Gatos Water Supply and Recharge	Reduces turbidity of water prior to recharge in Oka and McGlincey Ponds to improve recharge rates.	Cationic Polymer is injected into Kirk Ditch, then water is diverted through the detention pond	Blockhouse with 300 gal chemical storage tank; Detention pond	Chemical feed is not automated - efficiency could be improved	1961
Page	Los Gatos Water Supply and Recharge	Reduces turbidity of water prior to recharge in Camden, Page, Sunnyoaks, and Budd Ponds to improve recharge rates.	Cationic Polymer is injected into Page Ditch, then water is diverted through the detention pond	Blockhouse with 300 gal chemical storage tank; Detention pond	Chemical feed is not automated - efficiency could be improved	1965
Guadalupe	Guadalupe River Water Supply and Recharge	Reduces turbidity of water prior to recharge in Los Capitancillos Ponds to improve recharge rates.	Cationic Polymer is injected into the Masson Pipeline, then water is diverted through the detention pond	Blockhouse with small chemical storage tank; Detention pond		1962
Vasona Chemical Storage	Los Gatos Water Supply and Recharge	Stores cationic polymer for transfer to smaller 300 gallon tanks at Kirk and Page Ditch block houses, at the head of the Kirk and Page treatment facilities.	Staff manually fills totes and drives the chemical from Vasona to smaller tanks at Kirk and Page Ditch blockhouses.	Two 6000 gallon cationic polymer storage tanks		

Water Master Plan - Appendix A

SOUTH COUNTY REGIONAL WASTEWATER AUTHORITY (SCRWA)

System:	South County Regional Wastewater Authority (SCRWA)
Overview:	Treats waste water and delivers recycled water for agricultural irrigation. The distribution system is owned by the District and operated and maintained by CH2MHill OMI. The WWTP is owned by joint powers authority (Morgan Hill & Gilroy). South County Recycled Water Master Plan (SCRWMP, 2004) detailed future improvements for the SCRWA system.
Year Constructed:	1978

Facility	Description	Current Condition	Planned Future Upgrades
Wastewater Treatment Plant	Capacity of 7.5 MGD, 6 MGD for tertiary treatment; tertiary effluent suitable for landscape and agricultural irrigation	No Issues	
On-site Pump Station	Located at WWTP, three 125 hp pumps, 3,475 gpm or 5 MGD design capacity. Recently added 3 MGD capacity as part of SCRWMP	No Issues	SCRWMP Short Term - expand pump capacity by 6 MGD to a total of 14 MGD
On-site Reservoir	3 MGD; added as part of SCRWMP	No Issues	SCRWMP Short Term - add a second 3 MGD on-site reservoir
Booster Pump Station	Located west of Christmas Hill park, three pumps, 3,100 gpm or 4.5 MGD design capacity	No Issues	SCRWMP Long Term - expand pump capacity by 2 MGD
Storage Tank	1.5 MGD	No Issues	

Notes: Pipeline information is included in 'pipeline summary'; SCRWMP plans to add 10 miles of pipeline

STORAGE

Dam, Reservoir	Purpose	Dam Construction	Current Reservoir Capacity (AF)	Spillway Elevation (ft)	Associated Water Right Licensed Amount & Resource	Past Major Upgrades	Condition Issues not included in Dam Assessment Report	Year Complete
Almaden	Stores water for recharge and environmental flows in the system. Feeds Alamitos Creek.	105 ft. high compacted earth; 250,000 cubic yards of material	1,586	608.7	2,500 AF Surface Storage & Recharge; Almaden Creek	2007 Dam Instrumentation Project added instrumentation	DSOD storage restriction to 6.1 ft. below spillway crest (326 AF loss)	1935
Calero	Stores water for recharge and environmental flows in the system. Also stores water to supply the water treatment plants. Feeds the Almaden Valley Pipeline or Calero Creek.	98 ft. high compacted earth; 550,000 cubic yards of material	9,934	483.5	1. 3,500 AF Surface Storage Recharge; Calero Creek 2. 6,000 AF Transfer Water from Almaden; Almaden Creek	2007 Dam Instrumentation Project added instrumentation	DSOD storage restriction to 2 ft. below spillway crest for dam (688 AF loss); 5.9 ft. below spillway crest for dike (1949 AF loss)	1935
Guadalupe	Stores water for recharge and environmental flows in the system. Feeds Guadalupe Creek.	129 ft. high compacted earth; 520,000 cubic yards of material	3,415	617.3	3,500 AF Surface Storage; Guadalupe Creek	2007 Dam Instrumentation Project added instrumentation	DSOD storage restriction to 7.5 ft. below spillway crest (512 AF loss) from 4/1 to 2/15, and to 9.8 ft. below spillway crest (677 AF loss) from 2/16 to 3/31	1935
Lenihan, Lexington	Stores water for recharge and environmental flows in the system. Feeds Los Gatos Creek.	195 ft. high compacted earth; 2,124,000 cubic yards of material	19,044	649.9	30,000 AF Surface Storage; Los Gatos Creek	Spillway capacity increased and original dam height restored in 1997. Outlet works rehabilitated in 2010.	Outlet tunnel has known leakage that may require monitoring or repair	1952
Vasona	Stores water for recharge and environmental flows in the system. Feeds Los Gatos Creek.	30 ft. high composite unit with concrete slab and buttress center and two side sections of compacted earth that contain 70,000 cubic yards of material	495	294.83	1,684 AF Surface Storage; Los Gatos Creek	New gates installed in 1997		1935
Chesbro	Stores water for recharge and environmental flows in the system. Feeds Llagas Creek.	95 ft. high compacted earth; 467,000 cubic yards of material	7,945	525	1. 7,500 AF Percolation; Llagas Creek 2. 7,200 AF Percolation; Llagas Creek			1955
Uvas	Stores water for recharge and environmental flows in the system. Feeds Uvas Creek.	118 ft. high compacted earth; 377,000 cubic yards of material	9,835	487.5	10,000 AF Surface Storage, 14,400 AF Underground Storage; Uvas Creek			1957
Anderson	Stores water for recharge and environmental flows in the system. Also stores water to supply the water treatment plants. Feeds the Anderson Force Main, Main Avenue Pipeline, or Coyote Creek.	240 ft. high compacted earth and rock; 3,320,000 cubic yards of material	90,373	625	1. 20,180 AF Surface Storage; Coyote Creek 2. 71,100 AF Surface Storage; Coyote Creek	1987-88 reconstruction increased the spillway capacity, restored dam to original height, upgraded outlet works; 2007 Dam Instrumentation Project added instrumentation	DSOD storage restriction to 20.5 ft. below spillway crest (23,546 AF loss)	1950
Coyote	Stores water for recharge and environmental flows in the system. Feeds into Anderson Reservoir.	120 ft. high compacted earth and rock-filled; 1,060,000 cubic yards of material	23,244	777.2	24,560 AF Surface Storage; Coyote Creek		DSOD storage restriction to 19.2 ft. below spillway crest (10,862 AF loss)	1936
Stevens Creek	Stores water for recharge and environmental flows in the system. Feeds Stevens Creek.	120 ft. high compacted earth; 530,000 cubic yards of material	3,138	535	4,000 AF Surface Storage Recharge; Stevens Creek	Dam raised 10 ft. in 1985, added 231,000 cubic yards of material. Included seismic retrofits.		1935

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WELLS

Facility	Purpose	Description	Current Condition	Planned Future Projects
San Tomas Well Field	Water production well that provides water to the West Pipeline	3 wells, pumping range per well is 350 gpm in summer/fall to 1250 gpm in winter/spring or 0.5 to 1.8 MGD. (1.5 to 3.9 MGD total for all 3)	New, but not yet functioning due to no power connection	
San Tomas Injection Well	Injects treated water from RWTP via the West Pipeline and Campbell Distributary into the groundwater basin for recharge	1 injection well, design capacity of 410 - 470 gpm; 570 ft. deep	New, constructed in 1999	
Groundwater Monitoring Wells	Monitor groundwater levels and quality in Santa Clara County	Groundwater Level: 227 wells are monitored; Approx 130 are owned by the District; 77 on District land. 136 wells in Santa Clara Valley Subbasin, 17 wells in Coyote Subbasin, 72 wells in Llagas Subbasin. 13 are monitored bi-weekly for groundwater level, another 165 are used for groundwater modeling. Quality: a few dozen are used to monitor quality.	Some older wells have accumulated silt. Staff is reviewing the monitoring network to ensure it meets our needs.	Probable future project to rehabilitate the monitoring network: add some new wells & decommission some older wells. On-going maintenance work to de-silt wells
Land Subsidence Monitoring Wells	Monitor land subsidence in Santa Clara County	11 wells are used to model land subsidence (press model). 2 well sites (5 total wells) have compaction recorders.		

PENITENCIA WATER TREATMENT PLANT

Plant Overview:	PWTP treats water from the SBA. The treated water is delivered to water retailers on the east side of Santa Clara County via the East and Milpitas Pipelines.
System:	East Treated Water
Process:	Flow-through flocculation/sedimentation, ozone disinfection, and multi-media filtration. See plant flow diagram for additional process information.
Capacity:	40 MGD
Year Constructed:	1975

System	Purpose	Major Components	Date Constructed, Added, or Rehabbed	Current Condition	Planned Future Upgrades
Air Wash	Circulates air to filters for backwash	Valves (to each filter), actuators		No issues	
Alum	Coagulant	3 storage tanks, pumps, mixer, piping, feed building	TWIP I	No backup application point, issues with flushing feed lines, chemical tanks in direct sun	
Ammonia	Disinfection, helps maintain residual	1 storage tank, pumps, piping, water softener	TWIP I	Long run of piping, inadequate mixing, only one storage tank	Ammonia System Relocation and Upgrades CIP
Anionic Poly	Coagulant added at belt press	1 storage tank, 2 batch tanks, pumps, piping		Tank size issues, product coagulates	
Backwash	Pumps water back through filters for cleaning	Backwash pump, motor, valves (to each filter), actuators		Entrained air, bed expansion and depth issues; no back-up pump or spare parts	Backwash Pump Replacement Project currently replacing pump and motor and addressing bed expansion issues
Belt Press	Processes sludge from sed basins	Building, conveyor belt, pumps, surge blend tank		SCADA interface and control strategy not ideal, water demand issues	2020 major rehab/replacement, may warrant technology change (centrifuge, gravity thickeners, similar to RWTP)
Buildings and Grounds	Facilities required for housing plant employees	Operations building, surface roads, security gates		Seismic stability of operations building, space shortage in operations building and throughout site	IRP2 Seismic Study will address seismic issues with ops building; 2024 building rehab for dom. water, HVAC, lighting, etc.
Carbon	Can improve taste and odor	2 tanks, building, dust collection, pumps, mixers, piping	TWIP I	Issues with flushing pumps and dosing at filters	
Cat Poly	Coagulant	1 storage tank, 2 batch tanks, pumps, piping		No sump pump alarm	
Caustic (Sodium Hydroxide)	Balances pH (raises) if water is acidic	1 storage tank, pumps, piping		Only 1 tank, tanks need heating for better operability	
Clearwell	Stores treated water prior to distribution	Clearwell tank, valves		Corrosion and mixing issues, clearwell bypass vault issues	Clearwell Coating CIP to address corrosion issues ; 2022 clearwell rehab or replacement - date could be extended by coating CIP
EPL	Plant outflow to EPL	Valve and vault		Issues with vault structure stability and vault sump pump	
Exhaust Fans	Cools/heats buildings and equipment	Exhaust fans		No issues	
Filters	Filters settled water	6 filters, filter media, filter cones, valves	2005 – Filter Media Replaced	GAC media is not used for absorption due to short life. Media has approx. 10 year life - 2015 replacement. Filter re-coating should be included with this work if possible. Algae growth and turbidity are issues	2015 filter media replacement, 2019 basin recoating, valve replacements (on-going) could all be done at once. Basin re-coating every 15-20 years. Filter Basin Cover CIP to address Algae growth issue, suggest delaying to Filter Media replacement.
Fire Protection	Fire Protection	Sprinklers		Operations building may not be adequately protected	
Hydrogen Peroxide	Can improve taste and odor	1 storage tank, pumps, piping	2006	Issues with off-gassing, feed pump capacity, and off-loading due to site/space issues	
Liquid Oxygen	Feeds ozone generation system	2 storage tanks, pressure regulating valves, vaporizers	2006	Issues with blow-offs	
Non-Ionic Polymer	Coagulant	1 storage tank, 2 batch tanks, mixer, pumps, piping		Dosing, tank location, and sump pump alarm issues	

OCL (Sodium Hypochlorite)	Disinfection	3 storage tanks, pumps, piping	Toxic Gas Ord Project	SCADA controls and metering pumps issues, Storage tank issues related to site/space planning	
Ozone Cooling	Cooling system (water) for ozone generation equipment	Valves, piping	2006	Cooling water pump issues related to plant water system	Water Pump Mods CIP to address cooling water pumps issue (add issues from Needs Assessment)
Ozone Destruction	Destructs ozone that is not dissolved into water	2 ozone destructors, blowers	2006	No issues	
Ozone Generation & Contactors	Generates ozone	Ozone generation building, 3 ozone generators, PSUs, ozone contactor building, contactor basins, diffusers, monitors, analyzers	2006	Instrumentation issues - unnecessary shutdowns and alarms	2019 major system rehab
Ozone Quenching	Limits bromate production by quenching dissolved ozone once ct has been met (calcium thiosulfate)	2 storage tanks, pumps, piping	2006	System capacity issues	
Phosphoric Acid	Corrosion inhibitor	1 storage tank, pumps, piping		Issues with tank spill containment, pump reliability, metering pumps, sump pump, access stairs and level indicator. All issues are related to site/space planning.	Chemical Systems Upgrade CIP to address system issues (suggest delay to follow space/site planning)
Plant Air	Provides air to plant processes	2 compressors, piping		No issues	
Plant Water & Domestic Water	Provides water to plant processes and facilities	Pumps, piping		Issues with domestic system usefulness, old system redundancy, new system capacity	Water Pump Mods CIP to address new system capacity issue
Potassium Permanganate	Pre-oxidant	Building, dissolver tanks, pumps, piping		System is inefficient	
SBA	SBA source water into plant	Terminal Tank, valve, actuator		No issues	
Sedimentation Basins	Forms large flocs and settles the flocs out of water	3 flocculation basins, 3 sedimentation basins, floc drives, mixers, chain & flight/rakes		Floc and sed basins need re-coating. Basin access, rapid mixer, sludge removal, and settled water turbidity issues.	2019 recoating, then every 15-20 years; valve replacements (on-going) could be combined with this
Sludge	Receives sludge from sed basins for drying	Pumps, valves, actuators		No issues	
Sulfuric Acid	Limits bromate production by reducing pH of water entering ozone facilities	1 storage tank, spill tank, pumps, piping,	2006	No issues	
Sump pumps	Sump pumps to sanitary sewer drains for most systems	Sump and underdrain pumps		Some issues identified in specific systems	
Supplemental Nitrogen	Adds nitrogen to oxygen feed to increase ozone generation efficiency	2 compressors, piping	2006	Issue with feed control	
Washwater Recovery	Receives used washwater from filter backwashes and sludge drying beds	2 ponds, pumps, valves		Issues with high turbidity, pond capacity, and belt press water	

Water Master Plan - Appendix A
RINCONADA WATER TREATMENT PLANT

Plant Overview: RWTP treats water from the SBA (Delivered via the Central Pipeline and Rinconada Force Main) and from the San Felipe Division, Anderson Reservoir or Calero Reservoir (delivered via the Almaden Valley Pipeline and Rinconada Force Main). The
System: West Treated Water
Process: Up-flow Clarifier Flocculation, Dual Media Filtration, Chlorine Disinfection. See plant flow diagram for additional process information.
Capacity: 80 MGD
Date Constructed: 1965

System	Purpose	Major Components	Date Constructed, Added, or Rehabbed	Current Condition	Planned Future Upgrades
Airwash	Circulates air to filters for backwash	2 blowers, valves (to each filter)	Valve Replacement CIP - 2009	Valves, actuators, and corroded piping were just replaced in Valve Replacement CIP	None
Alum/Ferric	Coagulant	3 storage tanks, pumps, mixer, piping		Routine contract work needed - clean & inspect tanks, etc.	Chemical Storage CIP will add seismic upgrades to storage area (breezeway wall)
Ammonia	Disinfection, helps maintain residual	1 storage tank, pumps, water softener, piping		Routine contract work needed - clean & inspect tanks, etc.	None
Backwash	Pumps water back through filters for cleaning	1 pump, VFD, valves (to each filter), actuators	Valve Replacement CIP - 2009	Valves and actuators were just replaced in Valve Replacement CIP	Chemical System Upgrade CIP will replace pump ASD
Belt Press	Processes sludge from sludge drying beds, sends filtrate to lower ponds	Pumps, valves, piping, anionic polymer system, conveyor belt and building		Poor condition	Residuals Management CIP will upgrade or rehab entire system
Buildings & Grounds	Facilities required for housing plant employees	Operations building (domestic water, elevator, windows, lighting, etc), roads, security gates, fuel station, trailers		Ops building needs remodel - plumbing, ADA, HVAC, windows, doors, etc.	FRP Site Improvements will repair roads & gates; IRP2 Seismic Retrofits will upgrade ops building for life safety and may include ADA or other building improvements; TW Small Caps will address lab space allocation; Water Protection for security upgrades
Carbon (PAC)	Can improve taste and odor	2 storage tanks, feed pumps, dust collection	TWIP I	No issues to note	None
Cationic Polymer	Coagulant	2 storage tanks, pumps, piping		No issues to note	None
Caustic	Balances pH if water is acidic	1 storage tank, pump, piping		Tanks, containment, and storage structure need rehab	Chemical System Upgrade CIP will upgrade tanks and containment areas; Chemical Storage Upgrade CIP includes seismic retrofits to storage area
Clarifiers (Flocculators)	Forms large flocs and settles those flocs out of water	4 upflow clarifier structures, mechanisms (drives, rakes, motors)		Clarifier Mechanisms are being rebuilt under Clarifier Rehab CIP; Seismic Upgrades are needed	Reliability Improvements and/or Advanced Treatment CIPs will impact clarifiers - seismic upgrades will be addressed at that time
Clearwells & Treated Water Reservoir*	Stores treated water prior to distribution	2 clearwells w/ roofs, valves; 1 treated water reservoir w/ enclosure structure & valves		Have never been inspected; Roofs, guardrails, hatches, weir gates, need rehab	Clearwell Upgrade CIP for seismic upgrades to clearwells and roof rehab - included in IRP2 Seismic Retrofits Project
Filter Poly (Non-Ionic)	Coagulant (filter aid)	1 storage tank, 2 batch tanks, pumps, piping		No local control system	Filter Polymer Upgrade Project scheduled for future for control system improvements
Filters	Filters settled water	6 filters w/ sand/anthracite media, cones, valves		Filter Media and Cones need to be replaced; Filter Basins need rehab for seismic and for structural cracks	Reliability Improvements and/or Advanced Treatment CIPs will impact filters - upgrades will be addressed at that time
Fire Protection	Fire protection	Fire pump and piping		No issues to note	None
Floc Poly (Non-Ionic)	Coagulant (floc aid)	2 storage tanks, pumps, piping		No issues to note	None
HVAC	Cools/heats building and equipment	Boiler, chiller, circulation pumps		HVAC system is in poor condition and in need of major overhaul (contract/maint work)	None
Main Pumps	Pumps finished water to treated water reservoirs	More Avenue pump station, 2 booster pumps, valves		Several valves leak	Chemical Systems Upgrade CIP will replace valves and actuators
OCL	Disinfection	3 storage tanks, pumps, piping		Routine contract work needed - clean & inspect tanks, etc.	TW Small Caps will improve OCL tanks

Plant Air	Provides air for plant processes	3 air compressors, motors		Some corroded piping	None
Plant Water	Provides water for plant processes	3 plant water pumps, piping	System Rehab in 2000s	No issues to note	None
Potassium Permanganate	Pre-oxidant	Skid, building, pumps, analyzer	TWIP I	No issues to note	None
Sludge	Receives sludge from clarifiers and washwater recovery ponds for drying prior to belt press process	8 sludge drying beds, 2 lower ponds, pumps		Poor condition	Residuals Management CIP will upgrade or rehab entire system
Washwater Recovery	Settles used washwater from plant filter backwashes, sent back to plant inflow, sludge to drying beds	2 ponds, pumps		Poor condition	Residuals Management CIP will upgrade or rehab entire system
Zinc/Phosphoric Acid	Corrosion inhibitor	2 storage tanks, pumps, piping		Poor condition	Chemical System Upgrade Project will upgrade storage and metering

Notes: *FERC Regulated Dam

Water Master Plan - Appendix A
SANTA TERESA WATER TREATMENT PLANT

Plant Overview: STWTP treats water from the San Felipe Division, Anderson Reservoir, or Calero Reservoir. The treated water is delivered to water retailers on the east side of Santa Clara County via the Snell and East Pipelines.
System: East Treated Water
Process: Dual train flow-through flocculation/sedimentation, ozone disinfection, and multi-media filtration. See plant flow diagram for additional process information.
Capacity: 100 MGD
Year Constructed: 1989

System	Purpose	Major Components	Date Constructed, Added, or Rehabbed	Current Condition	Planned Future Upgrades
Air Wash	Circulates air to filters for backwash	2 blowers, valves (to each filter), actuators		Blowers are old, but reliable	
Alum	Coagulant	3 storage tanks, pumps, piping	TWIP I	Some tank issues	Incompatible Materials will rehab tanks
Ammonia	Disinfection, helps maintain residual	1 storage tank, pumps, piping	TWIP I	Some tank issues	Incompatible Materials will rehab tanks
Backwash	Pumps water back through filters for cleaning	2 backwash pumps, valves (to each filter), actuators		Pumps are old, but have been re-built. VFDs could be added in future.	
Buildings and Grounds	Facilities required for housing plant employees	Operations building, surface roads, security gates		Security gates are becoming obsolete, could be part of water protection project. Operations building roof leaks.	
Carbon	Can improve taste and odor	2 tanks, building, dust collection, pumps, mixers	TWIP I	Good, but system is obsolete. Storage of un-used chemical on-site is an issue. Space could be used for other future plant improvements.	
Cat Poly	Coagulant	1 storage tank, 2 batch tanks, pumps, piping	TWIP I added mixers	Some tank issues	
Caustic	Balances pH (raises) if water is acidic	1 storage tank, pumps, piping		Some tank and operability issues	Incompatible Materials will rehab tanks and improve system operability by adding heating
Clearwell	Stores treated water prior to distribution	2 Clearwells, sluice gates		Condition is unknown. Eventually will need re-coating and inspection. Valves are not exercised.	
Filters	Filters settled water	6 east filters, 6 west filters, filter media, filter cones, valves	2005 – Filter Media Replaced	GAC media is not used for absorption due to short life. Media has approx. 10 year life, but filters are loosing approx. 1" of media per year. Filter valve rehab and re-coating should be included with this work if possible.	Need to submit filter media replacement project (from AMP) to CIP by July 2013 to be done by 2015.
Fire Protection	Fire protection	Sprinkler, alarms		Good	
HVAC	Cools/heats buildings and equipment	Boiler, chiller, exhaust fans, air handling units		Unknown	
Hydrogen Peroxide	Can improve taste and odor	1 storage tank, pumps, piping	2006	New, not used	
Liquid Oxygen	Feeds ozone generation system	2 storage tanks, pressure regulating valves, vaporizers	2006	New	
Non-Ionic Polymer	Coagulant	Day tank, mixer, pumps, piping		Good	
OCL	Disinfection	3 storage tanks, pumps, piping	Toxic Gas Ord Project	Tanks require frequent maintenance	
Ozone Cooling	Cooling system (water) for ozone generation equipment	Valves, piping	2006	System is new, but runs off plant water system, which is in poor condition	
Ozone Destruction	Destructs ozone that was not dissolved into water	4 ozone destructors (2 east, 2 west)	2006	Blowers are unreliable and require frequent maintenance	
Ozone Generation & Contactors	Generates ozone	Ozone generation building, 3 ozone generators, PSUs, east and west ozone contactor buildings, contactor basins, diffusers, monitors, analyzers	2006	Not currently doing any maintenance on facility	Ozone Generation equipment requires replacement in 2019
Ozone Quenching	Limits bromate production by quenching dissolved ozone once ct has been met (calcium thiosulfate)	2 storage tanks, pumps, piping	2006	New, not used	

Phosphoric Acid	Corrosion inhibitor	1 storage tank, pumps, piping		Some tank issues	Incompatible Materials will rehab tanks and piping
Plant Air	Provides air to plant processes	2 compressors, piping		Good	
Plant Water	Provides water to plant processes	Hydro tank, pumps, piping		System is critical to plant operations and has operability issues. Pumps and piping have been rehabbed, but system has operating problems. Unknown if hydro tank or VFD controls are needed.	
Potassium Permanganate	Pre-oxidant	Building, skid, 2 dissolver tanks, pumps, piping		Good, but has not been used in 5 years. Storage of un-used chemical on-site is an issue. Space could be used for other future plant improvements.	
Raw Water	Chemicals added at head of plant are mixed prior to sedimentation to form flocs	Static mixer, vault, chemical diffusers, valves		Unknown if inlet valve is operational and condition is unknown.	
Sedimentation Basins	Forms large flocs and settles the flocs out of water	4 flocculation basins (2 east, 2 west), 4 sedimentation basins (2 east, 2 west), mixers (chain & flight/rakes part of sludge system)		Eventually will need re-coating.	Re-coating & valve replacement near 2020
Sludge	Receives sludge from sed basins for drying	Sedimentation basin rake assemblies, pumps, valves, actuators		Cleaning beds is large maintenance project.	
Spare Chemical	Spare feed system for additional chemical	Mixing tank, mixer, pumps, piping		N/A	Will be torn out with Incompatible Materials Project
Sulfuric Acid	Limits bromate production by reducing pH of water entering ozone facilities	1 storage tank, spill tank, pumps, piping,	2006	New, not used	
Sump pumps	Sump pumps to sanitary sewer drains for most systems	Sump and underdrain pumps		Filter gallery sumps drain into creek and could cause regulated discharge problem. Could plumb these into filter to waste pipe to avoid discharge problems.	
Supplemental Nitrogen	Adds nitrogen to oxygen feed to increase ozone generation efficiency	2 compressors, piping	2006	System is unreliable and causes frequent maintenance	
Washwater Clarification	Receives water from washwater recovery ponds, further clarifies the waste water, and sends it back to the head of the plant	Mixers, pumps, structure, wet well	2006	New, no issues	
Washwater Recovery	Receives used washwater from filter backwashes and sludge drying beds, water is settled then sent to washwater clarification	2 ponds (1 east, 1 west), pumps, valves		Old, but pumps have been re-built. No issues.	

APPENDIX B

Scope of Work Overview

Water Supply and Infrastructure Master Plan
Scope of Work Overview

The Water Supply and Infrastructure Master Plan (WSMIP) will define the District's long-term strategy for providing an adequate supply of high-quality water. It will specify a preferred mix of water supply sources and demand management programs, as well as the new infrastructure and infrastructure upgrades that are needed to treat, store, and convey the water supply sources. The planning horizon for WSIMP is 25 years, though it will be updated at least every five years and reviewed annually.

The WSIMP will focus existing and future planning efforts by:

- Providing direction for program-level planning by specifying the intended yields of various supplies and demand management programs, i.e., acre-feet per year of conservation, imported supplies, local water, and recycled water;
- Providing direction for facility-level planning by establishing intended capacity for high-level systems, i.e., treatment plants, pump stations, and pipelines; and
- Establishing supply reliability level of services, i.e., the acceptable magnitude and/or frequency of shortages

This is an overview of the scope of work for the WSIMP. District staff will complete all tasks described herein. Throughout the project, staff will gather input from an internal technical advisory team, an external stakeholder committee, a management team, and the Board of Directors. Each task will result in a technical memorandum (TM), which will be compiled into a final report documenting the WSIMP.

Task 1 – Describe Existing Water Supply System

OBJECTIVE: Establish the background and setting for the WSIMP. Information gathered in this task will inform the water supply system outlook developed in Task 4.

APPROACH: Compile information on the existing system and its condition in the following areas:

- Service Area – District, retailers, and independent water user boundaries, locations, and major facilities
- Supply Sources – Imported water, groundwater, local surface water, recycled water, and other county sources such as San Francisco Public Utilities Commission supplies
- Demand/Water Use – Existing and historic demand and use in Santa Clara County
- Infrastructure (Major Facilities Only) – Function, year constructed, capacity, past and planned upgrades, condition
- Operations and Service Issues – Typical District water supply system operations, operational constraints, contract or service issues

- Energy Efficiency – Water utility energy usage and GHG inventory, opportunities for efficiency improvements

Review the information to identify gaps in information on the water supply system, linkages between components of the water supply system, and linkages between water supply programs and projects. Identify areas of uncertainty, such as imported water supply supplies and future water quality regulations, and opportunities for optimizing the system. A strengths, weaknesses, opportunities and threats (SWOT) analysis of the water supply system will support this task.

DELIVERABLES: A TM summarizing the existing condition of the District's water supply and distribution system

Task 2 – Assess Climate Change Conditions and Impacts

OBJECTIVE: Determine how to address climate change in the WSIMP based on an understanding of current scientific knowledge and regulatory trends. Information gathered in this task will inform the water supply system outlook developed in Task 4.

APPROACH: Research existing information developed by the California Air Resources Board (CARB), DWR, and others; determine potential impacts to the District's water supply system operations, facilities, supplies, and demands. Based on this research, determine the best approach for addressing climate change in the WSIMP, including the following:

- The approach for incorporating climate change impacts on demand and supply projections
- The approach for incorporating climate change driven infrastructure improvements into portfolios
- A summary of climate change considerations to be incorporated into new projects

DELIVERABLES: A TM describing the approach for addressing climate change in the WSIMP

Task 3 – Update Modeling Tools

OBJECTIVE: Indentify modeling constraints and parameters for the WSIMP, and update the modeling tools for use in the WSIMP.

APPROACH: Identify modeling constraints and parameters including the following:

- Design droughts based on historical supply information (critical and extended dry year scenarios)
- Level of service objectives (e.g., contract obligations)
- Operational limitations (e.g., pipeline capacities)
- Planning needs (e.g., planning horizon)
- Other constraints (e.g., imported water pumping limits)

Update the WEAP (water supply) and H20Net (hydraulic) models based on the modeling constraints, and calibrate the models for use in the WSIMP.

DELIVERABLES: A TM summarizing the design drought and other modeling constraints; Updated and calibrated WEAP and H20Net models

Task 4 – Prepare Water Supply System Outlook

OBJECTIVE: Based on the information gathered in Tasks 1 and 2 and modeling updates performed in Task 3, define the water supply system outlook for the 25-year planning horizon. The water supply system outlook will identify supply and infrastructure needs and constraints. The needs and constraints will provide the basis for developing projects and portfolios in Task 6.

APPROACH: The subtasks that staff will conduct as part of Task 4 are outlined below.

Subtask 4.1 – Demand Analysis
Project future water demands for the 25-year planning horizon using the IWR-MAIN modeling tool to evaluate current demands and project countywide and service area demands. Project conservation savings for the next 25 years.

Subtask 4.2 – Project Future Baseline Supplies and Geographic Distribution
Project the availability and reliability of existing and planned supplies for the 25-year planning horizon based on anticipated availability under a variety of hydrologic conditions. Identify the risks and issues associated with each supply.

Subtask 4.3 – Prepare Shortfall Analysis
Using the WEAP model, assess the demand and supply projections and identify the timing, location, and drivers (demand, supply, or hydrology) of potential water supply shortfalls.

Subtask 4.4 – Prepare Infrastructure Constraints Analysis
Using the H20Net model, assess the location and severity of any infrastructure capacity or hydraulic constraints for delivering future supplies.

Subtask 4.5 – Conduct Risk Analysis
Identify risks to baseline water supplies and infrastructure, categorize the risks, and determine the probability of the risks occurring. Use the WEAP model to evaluate the potential impact of risks on the system. Summarize the vulnerabilities and resiliency of the system, and identify where risk mitigation projects may be beneficial.

Subtask 4.6 – Identify Baseline Water Supply System Needs
Identify the water supply and infrastructure needs that will be addressed by the WSIMP, including:

- Future water supply needs (Infrastructure needs associated with the future supplies will be identified in Task 6.)

- Infrastructure improvements needed to address future capacity or hydraulic constraints or anticipated regulatory requirements.

The baseline needs will be compiled into a baseline water system needs portfolio that will be incorporated into all portfolios developed in Task 6.

Subtask 4.7 – Summarize Outcomes of Water Supply System Outlook Analysis
Summarize the anticipated water supply shortfalls, infrastructure constraints, risks to the baseline water supply system, and issues and needs to be addressed in the WSIMP.

DELIVERABLES: A TM summarizing the process and outcomes of the water supply system outlook analyses

Task 5 – Planning Objectives

OBJECTIVE: Identify planning objectives and develop assessment criteria and weightings to be used for rating potential projects and comparing water resource portfolios

APPROACH: Review the District's mission and Board's policies to identify WSIMP planning objectives. Develop assessment criteria and weightings for the planning objectives that will be used to score and compare identified projects and portfolios.

DELIVERABLES: A TM identifying the planning objectives, assessment criteria and associated weightings

Task 6 – Develop and Analyze Projects and Portfolios

OBJECTIVE: Identify potential projects to meet the baseline water supply needs identified in Task 4, bundle those projects into portfolios, assess the portfolios based on planning objectives and assessment criteria, and identify a preferred portfolio(s).

APPROACH: The subtasks that staff will conduct as part of Task 6 are outlined below.

Subtask 6.1 – Identify Themes for Bundling Projects into Portfolios
Identify themes around which projects will be bundled into portfolios such water use efficiency, low cost, low carbon footprint, and diversification.

Subtask 6.2 – Identify and Develop Projects to Meet Future Needs
Identify potential projects for addressing projected future supply shortfalls, risks, issues and needs identified in Task 4. Develop projects in sufficient detail to apply assessment criteria, including parameters such as supply yield, basic infrastructure, water quality and treatment requirements, environmental impacts and benefits, and conceptual costs.

Subtask 6.3 – Evaluate Projects Based on Assessment Criteria
Assess each project using the assessment criteria developed in Task 5.

Subtask 6.4 – Assemble Portfolios by Theme
Combine projects into portfolios according to the themes developed in 6.1.

Subtask 6.5 – Portfolio Assessment with WEAP
Simulate each portfolio using the WEAP model. Assess the results of the model simulations using the decision-science tool Multi-Attribute Utility Analysis (MUA). MUA results in a benefit-cost ratio that is the basis for identifying preferred portfolios. Perform a preliminary risk analysis, simulating risk scenarios in the WEAP model to determine how well each portfolio responds to uncertainties and risks.

Develop hybrid portfolios that may respond better to the assessment criteria and risk based on the WEAP modeling results. Simulate the hybrid portfolios using the WEAP model, and repeat the steps to assess the hybrid portfolios' benefit-cost and risk. Identify the top three to five performing portfolios to be carried forward for H20Net and groundwater model evaluation.

Subtask 6.6 – Portfolio Assessment and Refinement with H20Net
Simulate the hybrid portfolios from subtask 6.5 in the H20Net model to identify any hydraulic or capacity issues. Based on the simulation results, identify portfolio additions or modifications.

Subtask 6.7 – Groundwater Modeling
Simulate the hybrid portfolios from subtask 6.5 in the groundwater model to confirm that portfolios conform to groundwater basin operational constraints. Based on the simulation results, identify portfolio additions or modifications.

Subtask 6.8 – Conduct Risk Analysis
Evaluate how well each of the top portfolios responds to variety of risk scenarios.

Subtask 6.9 – Finalize Preferred Hybrid Portfolios Based on Modeling Results and Risk
Revise portfolios and reassess in the WEAP model until portfolios are identified that meet planning objectives, meet operational constraints, and perform well under a variety of risk scenarios.

Subtask 6.10 – Develop TM Summarizing Task 6
Summarize the portfolio development and risk assessment process, and identify the preferred portfolios.

DELIVERABLES: A TM summarizing the portfolio development and risk assessment processes, and identifying the preferred portfolios

Task 7 – Identify Recommended Portfolio

OBJECTIVE: Identify the recommended portfolio for implementation

APPROACH: Conduct a cost-benefit analysis for the preferred hybrid portfolios using the MUA approach. Identify the portfolio that has the best benefit-cost ratio, performs well under a variety of risks, and meets planning objectives.

DELIVERABLES: A TM identifying the recommended portfolio and results of the cost-benefit analysis

Task 8 – Implementation Program

OBJECTIVE: Develop an implementation program including a schedule and financing for the recommended portfolio

APPROACH: Identify supply and demand triggers for when the new water supplies and associated infrastructure identified in the recommended portfolio must be online to meet future demands. Identify other triggers for bringing projects online such as regulatory dates or implementation dates in legal agreements. Identify linkage between projects since the implementation of some projects may trigger the need for another project or may offer an opportunity to do other projects at the same time. Determine the order in which projects will be implemented and develop a preliminary schedule of projects. In an iterative process, develop a final schedule for project implementation that will meet water supply-demand triggers, other triggers, and long-term financial planning objectives.

This task also includes finalizing the financial analysis for portfolio implementation over the planning horizon. The information on portfolio costs and project timing will be used to prepare a plan outlining the financial impacts of implementing the WSIMP.

The WSIMP implementation plan will be reviewed and updated annually. Each year, staff will evaluate current water supply system conditions and validate projects scheduled for implementation. This may result in accelerating or delaying elements of the implementation program. The WSIMP document will also be revised on a five-year basis. As a result, the specific projects and programs recommended for implementation will be reviewed and potentially modified on a five-year basis.

DELIVERABLES: An implementation schedule based on triggers and linkages and a financial plan for portfolio implementation

Task 9 – Compile Water Supply and Infrastructure Master Plan

OBJECTIVE: Prepare the WSIMP document

APPROACH: Compile the technical memoranda prepared in Tasks 1 through 8 into a Draft Water Supply and Infrastructure Master Plan. Circulate the Draft Plan for review, and address comments. Finalize the WSIMP based on comments.

DELIVERABLES: Draft and Final Water Supply and Infrastructure Master Plan

Task 11 – Stakeholder Outreach

OBJECTIVE: Outreach to, coordination with, and gathering input from internal staff, external stakeholders, District management, and District Board of Directors

APPROACH: Develop a Stakeholder Review Committee comprised of representatives from a broad range of interests throughout the county. Develop a technical team comprised of District staff representing different technical areas within the District. Develop a management team comprised of District unclassified management staff. Conduct periodic meetings with these groups to obtain feedback on the WSIMP, to coordinate with other groups or projects, and to provide information on WSIMP work. Additionally, provide periodic updates to the District's Board of Directors and Board Advisory Committees.

Staff will conduct quarterly meetings with the Stakeholder Review Committee and monthly meetings with the management and technical teams. Staff will provide updates to the Board and its Advisory Committees at major milestones.

DELIVERABLES: Meeting materials, meeting summaries, and facilitation for stakeholder committee, technical team, management team, and Board and Advisory Committee meetings

APPENDIX C

Stakeholder Steering Committee Meeting Materials

NOTE: All materials included as attachments to stakeholder steering committee meeting minutes are DRAFT. Information such as costs, benefits, yields, or strategy components may have changed since the time it was presented at the meeting.

Water Supply and Infrastructure Master Plan

Stakeholder Review Committee Meeting

May 17, 2010

(Prepared by Diane Moore)

Meeting Summary

Attendees: See enclosed sign-in sheet.

1. Introductions

The group made introductions.

2. Water Supply and Infrastructure Master Plan Purpose and Scope

Tracy Hemmeter went over purpose and scope of the Water Supply Infrastructure Master Plan (WSIMP). Some highlights are:

WSIMP Purpose

- The WSIMP will identify the water supply sources, programs, and infrastructure that will be needed to provide a reliable, clean water supply through the year 2035.
- Contributes to consistent and transparent investment strategy looking at timing, costs and benefits to the community
- Our current demands are approximately 380K acre-feet; future demands are projected to be about 450K acre-feet
- WSIMP will link various planning efforts at the District
- Last plan was the IWRP 2003; didn't include an implementation plan; WSIMP will include an implementation plan

WSIMP Scope

- Review of the District existing water supply sources, programs, and infrastructure to assess current conditions
- Planning objectives – description of what the Master Plan should try to achieve based on District policies
- Water supply and infrastructure outlook – what are the needs for 2035 and where gaps exist
- Water supply and infrastructure projects for filling the gaps
- Risk Analysis
- Implementation plan
- EIR

WSIMP Schedule

- Assess current conditions – June 2010
- Planning Objectives – August 2010
- Water supply and infrastructure outlook – December 2010, in coordination with Urban Water Management Plan
- Recommended portfolio of projects – October 2011

- Implementation Plan – February 2012
- Complete Master Plan and EIR – August 2012

Comments from Stakeholder Review Committee (SRC):

Q. What is the process for master planning? Will it be approved by the Board?

The District Board will be approving the Master Plan. District staff will check in with the Board at key milestones and keep the Board informed of input staff receives from this group, as well as from Board Advisory Committees and Retailers.

Q. With regard to Hetch Hetchy, how will that be folded into this process?

The District will coordinate with SFPUC and BAWSCA on their long term planning efforts. SFPUC is represented on the Stakeholder Review Committee (SRC).

Q. Will the District be providing limits on water supply?

No. District Ends policies currently state that we will meet current and future demands.

Q. Will be get a full project schedule at some point?

Yes, Tracy will send out a detailed project schedule (Action Item)

Q. By meeting the 8/12 completion date, what CIP budget cycle will this project influence?

The Water Master Plan will influence the FY 2014 budget cycle.

Q. What is the driver for the schedule?

The Board directed staff to complete the Master Plan as soon as possible.

Q. Will the District use consultants to prepare the Water Master Plan?

No, master plan will be developed using all in-house staff, with the exception of consultants for CEQA work. The District used GHD for the scoping phase of the project.

Q. Can District provide a brief work plan to review and discuss at the next meeting?

Yes, Tracy will provide a summary of the scope of work (Action Item)

3. Committee Purpose

District staff explained that staff's goal is to develop a Master Plan that is supported by the community. The purpose of the Stakeholder Review Committee is to:

- Reflect the concerns and issues of various stakeholders and the general public
- Serve as an important link to the community

- Provide input
- Comment on some draft products
- In some cases, assist in developing a specific product

The Committee will provide advice and input to District staff; it is not a Board Advisory Committee.

Staff will try to incorporate the Committee's input, but they are not a decision-making body.

Tracy will explain that we may be expanding the scope of planning work that the Committee will provide input on, so that the Committee is providing input on a variety of water resources planning topics and not just the Water Master Plan.

In addition,

- Members of the committee can and should report back to their organizations.
- District staff wants to know they are going in the right direction.
- SRC can assist in reviewing work products (if individual time is available).
- District staff will incorporate input where we can and let the SRC know if and why input was not incorporated.
- Staff will document meetings and make information available to committee members.
- Staff may ask the Committee to provide input on other planning projects, such as the San Luis Low-Point project or Habitat Conservation Plan efforts.
- Staff will keep the Board informed of SRC input.
- District would like committee-wide endorsement of the plan, but realize that is optimistic.

SRC Comments:

The SRC identified the need to add South County representatives and suggested the south county chambers of commerce or the San Martin Neighborhood Alliance.

The SRC also suggested adding Cal Water, water advocacy groups that are familiar with Delta interests, and someone representing rate payers.

Sandy Oblonsky will follow up on how to best address Delta issues (Action Item).

Tracy Hemmeter will look into local rate payers associations (Action Item).

Q. Will the Board understand what the committee recommendations are? SRC wants to ensure the Board will hear the committee's voice.

SRC comments will be summarized and presented to the Board.

Q. Are we only dealing with local water supply and infrastructure?

The Water Master Plan will identify the District's preferred mix of water supply sources, including both local and imported water supplies. The focus of the infrastructure element will be on the local infrastructure needed to convey, treat, and store water supplies. Out-of-county infrastructure will be addressed through broader collaborative efforts.

Comment that implementation plan portion of the Master Plan is a new piece of water supply planning and could pose some challenges.

4. **Committee Operations**:

Discussion ensued regarding meeting frequency, day, time and place for future meetings, and decisions on how group would like to operate.

Decisions will be made on an up/down vote.

Information will be provided by staff prior to meetings for their review.

Group agreed to Monday meetings from 10 am to Noon on a quarterly basis; conference rooms will be announced as they are booked, but A-143 will be default.

SRC asked that District staff provide adequate notice for meetings (at least 2 weeks) and communicate via email for smaller documents. For larger documents District will use its website or FTP site. District will post materials before meetings.

Q. Will this group have a website? How will files and information be shared?

District staff mentioned that this could be done, but would entail some work. Alternately, the group could use a 'yahoo groups' page, or just email or FTP documents. The group agreed that email was best, with FTP for larger files. Trish Mulvey needs hard copy.

Documents will be saved and sent in MS Word 97-2003 format or RTF version

Diane to check if RTF has "track changes" capability (Action Item).

Group approved using MS Outlook for meeting requests.

The SRC agreed to the following Ground Rules:

- Regularly attend meetings
- Alternates are allowed if prepared for meeting
- Special guests are allowed with advance notice/permission
- Articulate interests/concerns
- Maintain open mind
- Constructively manage conflict between themselves and others
- Represent self rather than District or Committee when discussing the committee or project with others

- State in meeting if you are representing self or organization
- Information provided to committee is sharable unless otherwise stated; Draft should clearly be labeled as such
- Staff will have mechanism for recording comments (possible audio taping is approved by group if needed)

5. Santa Clara County Water Supply System Overview

District went over the "Where does our water come from?" brochure (attached). The Committee provided comments, deleting Alviso, adding Stanford, and using San Francisco Regional Water Supply instead of Hetch Hetchy. Tracy will share these comments with customer relations staff.

6. Next Meeting

THE NEXT MEETING IS SCHEDULED FOR JULY 19, 2010 FROM 10 AM to NOON IN CONFERENCE ROOM A-143.

Items for next meeting:

- Planning Objectives
- Descriptive Work plan and Schedule
- Meeting Summary approval

District Contact Information:

Tracy Hemmeter- Project Manager- x2647
Marty Grimes- Group Facilitator- x 2881
Diane Moore- Project Coordination- x3066

Water Supply and Infrastructure Master Plan
Stakeholder Review Committee
May 17, 2010

Name	Organization	Phone Number	Email
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Trish Mulvey	you have all this		
George Belhumeur	SJWC	(408) 279-7805	george_belhumeur@sjwater.com
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Chris deGroot	City of Santa Clara	408 615-2014	cdegroot@santaclaraca.gov
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Name	Organization	Phone Number	Email
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Diane Moore	SCVWD	ext 3066	
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Sandy Oblonsky	SCVWD	(408) 265-2607 ext 2720	soblonsky@valleywater.org
Erin Baker	SCVWD	(408) 265-2607 x 2608	ebaker@valleywater.org
Tracy Hemmeter	SCVWD	265-2607 x2647	themmeter@valleywater.org

Where does *your* water come from?

	Local water			Imported water			Other
	Natural groundwater	From reservoirs to replenish groundwater	From reservoirs to drinking water treatment plants	Thru Delta to replenish groundwater	Thru Delta to drinking water treatment plants	From Hetch Hetchy	Recycled
Alviso						X	X
Campbell	X	X	X	X	X		
Cupertino	X	X	X	X	X		
Gilroy	X	X		X			X
Los Altos	X	X	X	X	X		
Los Altos Hills	X	X	X	X	X	X	
Los Gatos	X	X	X	X	X		
Milpitas			X		X	X	
Monte Sereno	X	X	X	X	X		
Morgan Hill	X	X		X			
Mountain View	X	X	X	X	X	X	X
Palo Alto						X	X
San Jose	X	X	X	X	X	X	X
San Martin	X	X		X			
Santa Clara	X	X	X	X	X	X	X
Saratoga	X	X	X	X	X		
Sunnyvale	X	X	X	X	X	X	X

About the Santa Clara Valley Water District

Established in 1929, the Santa Clara Valley Water District serves the county's 1.8 million residents. The water district built and manages 10 local reservoirs, protects and manages the groundwater basins, protects the quality of its water sources; designs, builds and operates water conveyance and distribution facilities; and operates three drinking water treatment plants. It also sells treated water to local water retailers that serve communities within the county via their own distribution systems.

On the cover:

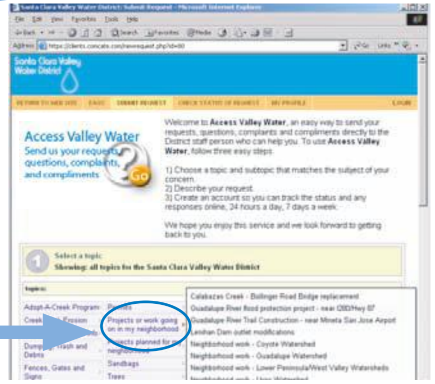
1. Alamitos Groundwater Recharge Pond, San Jose
2. California Aqueduct
3. Recycled Water "purple pipe"
4. Save water for a better world

Santa Clara Valley
Water District℠
5750 Almaden Expwy
San Jose, CA 95118
www.valleywater.org

Contact us

For more information, contact Customer Relations at **(408) 265-2607, ext. 2000.**

Also, visit our website at www.valleywater.org and use our Access Valley Water customer request and information system. With three easy steps, you can use this service to find out the latest information on the project or to submit questions, complaints or compliments directly to a district staff person.


Santa Clara Valley Water District: Submit Request - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Santa Clara Valley Water District
SUBMIT REQUEST
CHECK STATUS OF REQUEST
MY PROFILE
LOGIN
Access Valley Water
Send us your requests, questions, complaints, and compliments
Go

Welcome to **Access Valley Water**, an easy way to send your requests, questions, complaints and compliments directly to the District staff person who can help you. To use **Access Valley Water**, follow three easy steps:

1) Choose a topic and subtopic that matches the subject of your concern.
2) Describe your request.
3) Create an account so you can track the status and any responses online, 24 hours a day, 7 days a week.

We hope you enjoy this service and we look forward to getting back to you.

1 Select a topic:
Showing: all topics for the Santa Clara Valley Water District

Topics:
Adopt-A-Creek Program
Dumping, Trash and Debris
Fences, Gates and Signs
Projects or work going on in my neighborhood
Projects planned for my neighborhood
Sandbags
Trees

Calabazas Creek - Bollinger Road Bridge replacement
Guadalupe River flood protection project - near I280/Hwy 87
Guadalupe River Trail Construction - near Mineta San Jose Airport
Lenihan Dam outlet modifications
Neighborhood work - Coyote Watershed
Neighborhood work - Guadalupe Watershed
Neighborhood work - Lower Peninsula/West Valley Watersheds

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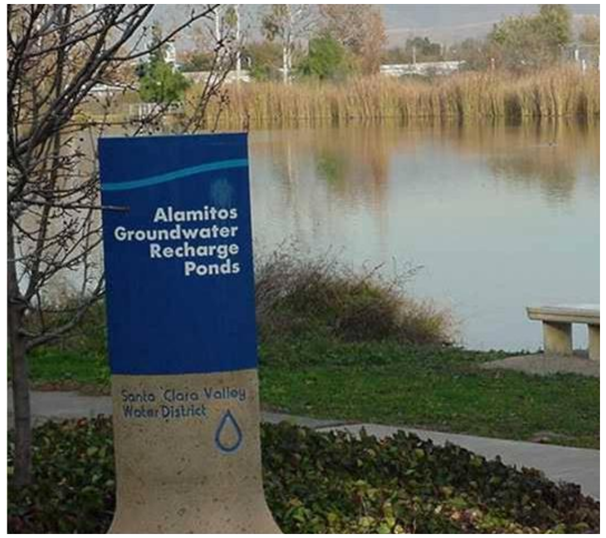
Santa Clara Valley
Water District℠

inside: **Where does our water come from?**



Local water

Groundwater and local surface water is the county's original source of water supply. Local rainfall and runoff flows into reservoirs for storage and blending with imported water. The water is released into creeks and ponds to augment natural percolation and maintain groundwater levels. Some of the local surface water is processed at drinking water treatment plants. The treated water is sold to local water retailers such as San Jose Water Company who use their own distribution systems to serve customers. Water pumped from the groundwater aquifer through wells is used by private well owners, farmers, and water retailers.

Imported water

Half of Santa Clara County's water supply comes from hundreds of miles away - first as snow or rain in the Sierra Nevada range of northern and eastern California, then as water in rivers that flow into Sacramento-San Joaquin River Delta or directly to water conveyance systems. Often called "imported water", it is brought into the county through the complex infrastructure of the State Water Project, the federal Central Valley Project and San Francisco's Hetch Hetchy system.

Recycled water

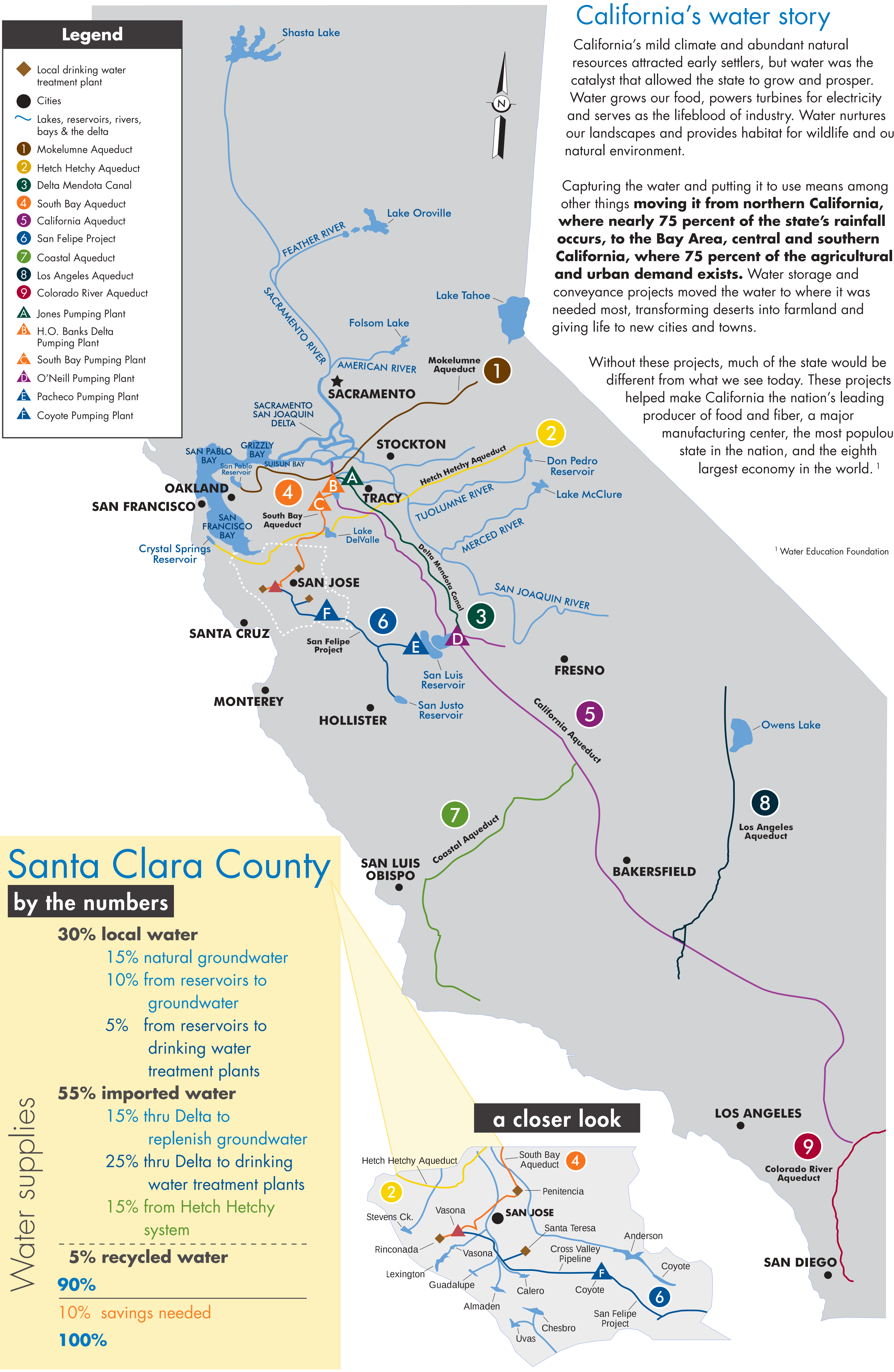
A small, but important and growing source by water is recycled water. Used primarily for irrigation, industry and agriculture, recycled water is wastewater that has been purified to meet strict standards set by the California Department of Health Services. Using recycled water helps conserve drinking water supplies, provides a dependable, drought-proof, locally-controlled water supply, reduces dependency on imported water and groundwater and helps preserve our saltwater and tidal habitat by reducing freshwater discharge to the bay.

THE GRASS ISN'T AS THIRSTY AS YOU THINK.
For a better world, water your lawn just one mintue less and save 20 gallons
save20gallons.org

Save water

Did you know that only less than 1 percent of all water on Earth is suitable for use by people? The rest is salt water, like the kind found in the ocean, or is permanently frozen. We can't drink it, wash with it or use it to water plants. With California in the midst of drought, we must be careful not to waste this precious limited resource.

Where does our water come from?



California's water story

California's mild climate and abundant natural resources attracted early settlers, but water was the catalyst that allowed the state to grow and prosper. Water grows our food, powers turbines for electricity and serves as the lifeblood of industry. Water nurtures our landscapes and provides habitat for wildlife and our natural environment.

Capturing the water and putting it to use means among other things **moving it from northern California, where nearly 75 percent of the state's rainfall occurs, to the Bay Area, central and southern California, where 75 percent of the agricultural and urban demand exists.** Water storage and conveyance projects moved the water to where it was needed most, transforming deserts into farmland and giving life to new cities and towns.

Without these projects, much of the state would be different from what we see today. These projects helped make California the nation's leading producer of food and fiber, a major manufacturing center, the most populous state in the nation, and the eighth largest economy in the world.[1]

---

[1] Water Education Foundation

Santa Clara County

by the numbers

30% local water

- 15% natural groundwater
- 10% from reservoirs to groundwater
- 5% from reservoirs to drinking water treatment plants

55% imported water

- 15% thru Delta to replenish groundwater
- 25% thru Delta to drinking water treatment plants
- 15% from Hetch Hetchy system

5% recycled water

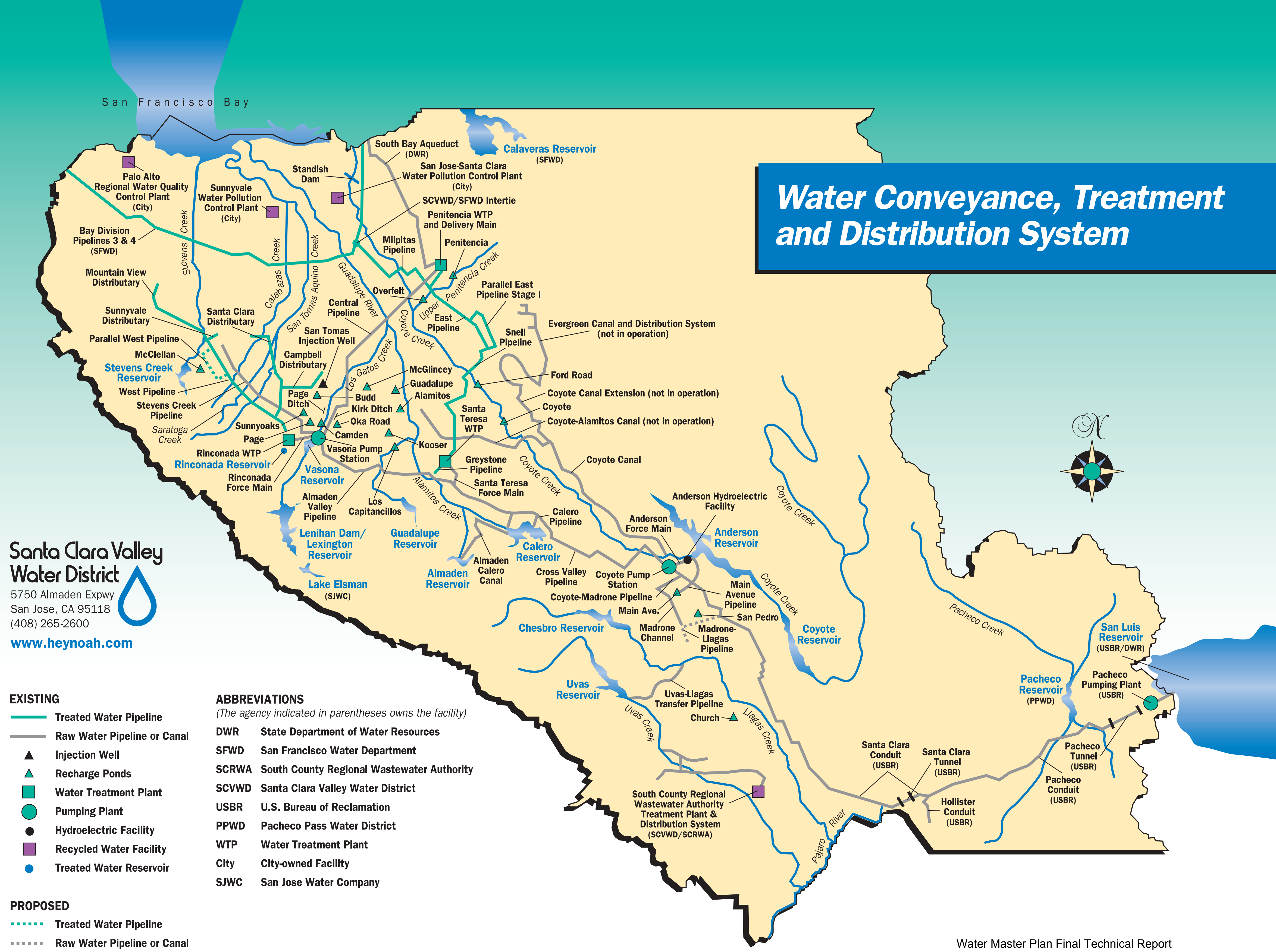
90%

10% savings needed

100%

Water supplies

Water Conveyance, Treatment and Distribution System



Santa Clara Valley
Water District
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San Jose, CA 95118
(408) 265-2600
www.heynoah.com

EXISTING

- ━ Treated Water Pipeline
- ━ Raw Water Pipeline or Canal
- ▲ Injection Well
- ▲ Recharge Ponds
- ■ Water Treatment Plant
- ● Pumping Plant
- ● Hydroelectric Facility
- ■ Recycled Water Facility
- ● Treated Water Reservoir

PROPOSED

- ┅ Treated Water Pipeline
- ┅ Raw Water Pipeline or Canal

ABBREVIATIONS

(The agency indicated in parentheses owns the facility)

DWR	State Department of Water Resources
SFWD	San Francisco Water Department
SCRWA	South County Regional Wastewater Authority
SCVWD	Santa Clara Valley Water District
USBR	U.S. Bureau of Reclamation
PPWD	Pacheco Pass Water District
WTP	Water Treatment Plant
City	City-owned Facility
SJWC	San Jose Water Company

Water Resources Planning Stakeholder Review Committee
7/19/10 Meeting Summary

Prepared by Tracy Hemmeter, 7/19/2010

1. Introductions

See attached sign-in sheet for meeting participants.

2. Follow-up Items from Previous Meeting

- The project schedule and scope of work for the Water Supply and Infrastructure Master Plan (WSIMP) were attached to the meeting reminder.
- Tracy Hemmeter followed up with Sylvia Hamilton regarding participation from the San Martin Neighborhood Alliance and is waiting to hear back.
- There is a presentation on the Delta planning on the current agenda as a follow-up on Delta issues.
- Staff looked into local rate payers associations, but could not find a group that was not in an adversarial relationship with the District.
- It is possible to use the track changes feature of Word when documents are saved in the RTF file format.

☞[1] District staff needs to make sure not to send Office 2007 files, as not everyone has the software.

3. Discussion on Expanding Stakeholder Review Committee Scope

Tracy Hemmeter (SCVWD) explained that the District would like to expand the scope of projects on which the Committee will provide input to include all types of long-term water resource planning projects. She reviewed the schedule of topics that was included in the agenda package and noted that other topics, such as the Habitat Conservation Plans and Indirect Potable Reuse, were not yet included on the schedule.

The Committee had the following comments:

- Trish Mulvey (Santa Clara Basin WMI) provided Tracy and Luis Jaimes (SCVWD) will copies of an ABAG newsletter article titled, “Public Engagement is Lynchpin for Developing Sustainable Communities Strategy, which is available at: http://www.abag.ca.gov/abag/overview/pub/newsletter/posts/SM%20July-Aug2010.pdf.

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[1] Action Item

- Topics should include the Santa Clara Valley Habitat Conservation Plan and water conservation. Retailer representatives are interested in potable re-use and the Urban Water Management Plan.

Tracy asked for input on the Committee's meeting frequency and meeting duration, given the addition of additional topics. The Committee had mixed thoughts on increasing the frequency or duration of meetings. There was consensus that the meeting content should drive the meeting length. Also, there was a suggestion to do updates/topics that do not require a lot of input at the beginning of a longer meeting and save the core two meeting hours for topics that need stakeholder discussion and input.

2a. Imported Water/Delta Planning Issues

Joan Maher (SCVWD) gave a presentation on the Delta planning issues. The presentation is attached. Additionally, much of the presentation information is available on the Bay-Delta Conservation Plan website. The key slide in the presentation is Slide No. 21 regarding water diversions from the Delta. Divisions from the Delta under any of the conveyance options being considered would not significantly increase diversions over baseline conditions. The current restrictions on diversions are based on avoiding flow reversal at key points in the Delta. Alternative conveyance options would avoid flow reversal at these points. Larger conveyance options have greater benefits to the environment than the smaller, less costly options.

In response to a question regarding how the Delta planning effort is addressing climate change, Joan explained that the planning horizon is 50 years and the modeling includes climate change.

The preferred alternative will not be finalized until the Record of Decision, which is currently scheduled for the middle of 2012. In the meantime, water contractors are spending money on environmental review and preliminary design of two canal options and one tunnel option.

4. Water Supply and Infrastructure Master Plan Planning Objectives

Tracy described the draft planning objectives that were included in the agenda package. There are six planning objectives: ensure water supply reliability, maximize water use efficiency, ensure water quality, minimize cost impacts, protect the natural environment, and ensure community benefits. The Committee completed two weighting exercises. In the dot ranking exercise, people were asked to use 20 dots to indicate their preferences in the objectives, though no one objective should receive more than five dots. In the paired comparison, people were asked to compare pairs of objectives and indicate their preferred alternative and indicate how much they preferred the alternative (more or much more). The Committee reviewed the results, along with the Technical Team's results. The results are attached. The Committee had the following comments:

- The dot ranking exercise is constrained, since people couldn't use all their dots on one objective.
- Didn't rank reliability high because it accommodates uncontrolled growth.
- Ranked reliability high, because that is my organization's primary purpose with regard to water supply.
- District shouldn't tell retailers how to do rates. Rate studies cost money and implementing new rate structures costs money.

5. Flood Protection and Stream Stewardship Master Plan

Luis gave a presentation on the Flood Protection and Stream Stewardship Master Plan. The presentation is attached. The Committee recommended evaluating what work is still needed in the areas of trails, fish passage, and sediment removal. These program elements are desirable, but without knowing what is needed it is hard to advise going beyond the baseline.

6. Next Meeting

The next meeting will be held in mid-October.

Water Supply and Infrastructure Master Plan
Stakeholder Review Committee
July 19, 2010

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Water Supply and Infrastructure Master Plan
Scope of Work Overview

July 2010

The Water Supply and Infrastructure Master Plan (WSMIP) will establish a path to long-term water supply reliability consistent with District Ends Policies. It will articulate the District's long-term water supply strategy and identify the water supply sources, programs, and infrastructure that will be required to meet demands over a 25-year planning horizon. The WSIMP will focus existing and future planning efforts and foster transparency and stakeholder support for project implementation.

This is an overview of the scope of work for the WSIMP. District staff will complete all tasks described herein, with the exception of Task 10, which requires consultant assistance. Throughout the project, staff will gather input from an internal technical advisory team, an external stakeholder committee, an executive management team, and the Board of Directors. Each task completed by District staff will result in a technical memorandum (TM), which will be compiled into a final report documenting the WSIMP.

Task 1 – Describe Existing Water Supply System

OBJECTIVE: Establish the background and setting for the WSIMP. Information gathered in this task will inform the water supply system outlook developed in Task 4.

APPROACH: Compile information on the existing system and its condition in the following areas:

- Service Area – District, retailers, and independent water user boundaries, locations, and major facilities
- Supply Sources – Imported water, groundwater, local surface water, recycled water, and other county sources such as San Francisco Public Utilities Commission supplies
- Demand/Water Use – Existing and historic demand and use in Santa Clara County
- Infrastructure (Major Facilities Only) – Function, year constructed, capacity, past and planned upgrades, condition
- Operations and Service Issues – Typical District water supply system operations, operational constraints, contract or service issues
- Energy Efficiency – Water utility energy usage and GHG inventory, opportunities for efficiency improvements

Review the information to identify gaps in information on the water supply system, linkages between components of the water supply system, and linkages between water supply programs and projects. Identify areas of uncertainty, such as imported water supply supplies and future water quality regulations, and opportunities for optimizing the system. A strengths, weaknesses, opportunities and threats (SWOT) analysis of the water supply system will support this task.

DELIVERABLES: A TM summarizing the existing condition of the District's water supply and distribution system

Task 2 – Assess Climate Change Conditions and Impacts

OBJECTIVE: Determine how to address climate change in the WSIMP based on an understanding of current scientific knowledge and regulatory trends. Information gathered in this task will inform the water supply system outlook developed in Task 4.

APPROACH: Research existing information developed by the California Air Resources Board (CARB), DWR, and others; determine potential impacts to the District's water supply system operations, facilities, supplies, and demands. Based on this research, determine the best approach for addressing climate change in the WSIMP, including the following:

- The approach for incorporating climate change impacts on demand and supply projections
- The approach for incorporating climate change driven infrastructure improvements into portfolios
- A summary of climate change considerations to be incorporated into new projects

DELIVERABLES: A TM describing the approach for addressing climate change in the WSIMP

Task 3 – Update Modeling Tools

OBJECTIVE: Indentify modeling constraints and parameters for the WSIMP, and update the modeling tools for use in the WSIMP.

APPROACH: Identify modeling constraints and parameters including the following:

- Design droughts based on historical supply information (critical and extended dry year scenarios)
- Level of service objectives (e.g., contract obligations)
- Operational limitations (e.g., pipeline capacities)
- Planning needs (e.g., planning horizon)
- Other constraints (e.g., imported water pumping limits)

Update the WEAP (water supply) and H20Net (hydraulic) models based on the modeling constraints, and calibrate the models for use in the WSIMP.

DELIVERABLES: A TM summarizing the design drought and other modeling constraints; Updated and calibrated WEAP and H20Net models

Task 4 – Prepare Water Supply System Outlook

OBJECTIVE: Based on the information gathered in Tasks 1 and 2 and modeling updates performed in Task 3, define the water supply system outlook for the 25-year planning horizon. The water supply system outlook will identify supply and infrastructure improvements needed to maintain the baseline system. This will be carried forward into the project portfolios developed in Task 6.

APPROACH: The subtasks that staff will conduct as part of Task 4 are outlined below.

Subtask 4.1 – Demand Analysis
Project future water demands for the 25-year planning horizon using the IWR-MAIN modeling tool to evaluate current demands and project countywide and service area demands. Project conservation savings for the next 25 years. Meet with retailers and land use agencies to discuss the calculated demand projections and rectify differences.

Subtask 4.2 – Project Future Baseline Supplies and Geographic Distribution
Project the availability and reliability of existing and planned supplies for the 25-year planning horizon based on anticipated availability under a variety of hydrologic conditions. Identify the risks and issues associated with each supply.

Subtask 4.3 – Prepare Shortfall Analysis
Using the WEAP model, assess the demand and supply projections and identify the timing, location, and drivers (demand, supply, or hydrology) of potential water supply shortfalls.

Subtask 4.4 – Prepare Infrastructure Constraints Analysis
Using the H20Net model, assess the location and severity of any infrastructure capacity or hydraulic constraints for delivering future supplies.

Subtask 4.5 – Conduct Risk Analysis
Identify risks to baseline water supplies and infrastructure, categorize the risks, and determine the probability of the risks occurring. Use the WEAP model to evaluate the impact of several risk scenarios on the system. Summarize the vulnerabilities and resiliency of the system, and identify where risk mitigation projects may be beneficial.

Subtask 4.6 – Identify Baseline Water Supply System Needs
Identify the water supply and infrastructure needs that will be addressed by the WSIMP, including:

- Future water supply needs (Infrastructure needs associated with the future supplies will be identified in Task 6.)
- Infrastructure improvements needed to address future capacity or hydraulic constraints or anticipated regulatory requirements.

The baseline needs will be compiled into a baseline water system needs portfolio that will be incorporated into all portfolios developed in Task 6.

Subtask 4.7 – Summarize Outcomes of Water Supply System Outlook Analysis
Summarize the anticipated water supply shortfalls, infrastructure constraints, risks to the baseline water supply system, and issues and needs to be addressed in the WSIMP.

DELIVERABLES: A TM summarizing the process and outcomes of the water supply system outlook analyses

Task 5 – Planning Objectives

OBJECTIVE: Identify planning objectives and develop assessment criteria and weightings to be used for rating potential projects and comparing water resource portfolios

APPROACH: Review the District's mission and Board's policies to identify WSIMP planning objectives. Develop assessment criteria and weightings for the planning objectives that will be used to score and compare identified projects and portfolios.

DELIVERABLES: A TM identifying the planning objectives, assessment criteria and associated weightings

Task 6 – Develop and Analyze Projects and Portfolios

OBJECTIVE: Identify potential projects to meet the baseline water supply needs identified in Task 4, bundle those projects into portfolios, assess the portfolios based on planning objectives and assessment criteria, and identify a preferred portfolio(s).

APPROACH: The subtasks that staff will conduct as part of Task 6 are outlined below.

Subtask 6.1 – Identify Themes for Bundling Projects into Portfolios
Identify themes around which projects will be bundled into portfolios such water use efficiency, low cost, low carbon footprint, and diversification.

Subtask 6.2 – Identify and Develop Projects to Meet Future Needs
Identify potential projects for addressing projected future supply shortfalls, risks, issues and needs identified in Task 4. Develop projects in sufficient detail to apply assessment criteria, including parameters such as supply yield, basic infrastructure, water quality and treatment requirements, environmental impacts and benefits, and conceptual costs.

Subtask 6.3 – Evaluate Projects Based on Assessment Criteria
Assess each project using the assessment criteria developed in Task 5.

Subtask 6.4 – Assemble Portfolios by Theme
Combine projects into portfolios according to the themes developed in 6.1.

Subtask 6.5 – Portfolio Assessment with WEAP
Simulate each portfolio using the WEAP model. Assess the results of the model simulations using the decision-science tool Multi-Attribute Utility Analysis (MUA). MUA results in a benefit-cost ratio that is the basis for identifying preferred portfolios. Perform a preliminary risk analysis, simulating risk scenarios in the WEAP model to determine how well each portfolio responds to uncertainties and risks.

Develop hybrid portfolios that may respond better to the assessment criteria and risk based on the WEAP modeling results. Simulate the hybrid portfolios using the WEAP model, and repeat the steps to assess the hybrid portfolios' benefit-cost and risk. Identify the top three to five performing portfolios to be carried forward for H20Net evaluation.

Subtask 6.6 – Portfolio Assessment and Refinement with H20Net
Simulate the hybrid portfolios from subtask 6.5 in the H20Net model to identify any hydraulic or capacity issues. Based on the simulation results, identify portfolio additions or modifications.

Using the MUA approach, identify the top two to three portfolios to be carried forward for groundwater model evaluation.

Subtask 6.7 – Groundwater Modeling
Simulate the hybrid portfolios from subtask 6.6 in the groundwater model to confirm that portfolios conform to groundwater basin operational constraints. Based on the simulation results, identify portfolio additions or modifications.

Subtask 6.8 – Conduct Risk Analysis
Evaluate how well each of the top portfolios responds to variety of risk scenarios.

Subtask 6.9 – Finalize Preferred Hybrid Portfolios Based on Modeling Results and Risk
Revise portfolios and reassess in the WEAP model until portfolios are identified that meet planning objectives, meet operational constraints, and perform well under a variety of risk scenarios.

Subtask 6.10 – Develop TM Summarizing Task 6
Summarize the portfolio development and risk assessment process, and identify the preferred portfolios.

DELIVERABLES: A TM summarizing the portfolio development and risk assessment processes, and identifying the preferred portfolios

Task 7 – Identify Recommended Portfolio

OBJECTIVE: Identify the recommended portfolio for implementation

APPROACH: Conduct a cost-benefit analysis for the preferred hybrid portfolios using the MUA approach. Identify the portfolio that has the best benefit-cost ratio, performs well under a variety of risks, and meets planning objectives.

DELIVERABLES: A TM identifying the recommended portfolio and results of the cost-benefit analysis

Task 8 – Implementation Program

OBJECTIVE: Develop an implementation program including a schedule and financing for the recommended portfolio

APPROACH: Identify supply and demand triggers for when the new water supplies and associated infrastructure identified in the recommended portfolio must be online to meet future demands. Identify other triggers for bringing projects online such as regulatory dates or implementation dates in legal agreements. Identify linkage between projects since the implementation of some projects may trigger the need for another project or may offer an opportunity to do other projects at the same time. Determine the order in which projects will be implemented and develop a preliminary schedule of projects. In an iterative process, develop a final schedule for project implementation that will meet water supply-demand triggers, other triggers, and long-term financial planning objectives.

This task also includes finalizing the financial analysis for portfolio implementation over the planning horizon. The information on portfolio costs and project timing will be used to prepare a plan outlining the financial impacts of implementing the WSIMP.

The WSIMP implementation plan will be reviewed and updated annually. Each year, staff will evaluate current water supply system conditions and validate projects scheduled for implementation. This may result in accelerating or delaying elements of the implementation program. The WSIMP document will also be revised on a five-year basis. As a result, the specific projects and programs recommended for implementation will be reviewed and potentially modified on a five-year basis.

DELIVERABLES: An implementation schedule based on triggers and linkages and a financial plan for portfolio implementation; Annual review and five year revisions of the WSIMP

Task 9 – Compile Water Supply and Infrastructure Master Plan

OBJECTIVE: Prepare the WSIMP document

APPROACH: Compile the technical memoranda prepared in Tasks 1 through 8 into a Draft Water Supply and Infrastructure Master Plan. Circulate the Draft Plan for review, and address comments. Finalize the WSIMP based on comments and the environmental review (CEQA) process.

DELIVERABLES: Final Water Supply and Infrastructure Master Plan

Task 10 – CEQA Compliance

OBJECTIVE: Complete documentation necessary to comply with the California Environmental Quality Act (CEQA). It is anticipated that a Programmatic Environmental Impact Report (PEIR) will be completed for this project.

APPROACH: Complete the steps required by CEQA, outlined below:

- Prepare Notice of Preparation (NOP)
- Issue NOP and hold public meeting
- Prepare Administrative Draft PEIR
- Review Administrative Draft PEIR
- Prepare Draft PEIR
- File Notice of Completion and public notice of Draft PEIR
- Address Draft PEIR comments
- Prepare Final PEIR

- Submit Final PEIR for approval

DELIVERABLES: Final PEIR and supporting drafts and documentation

Task 11 – Stakeholder Outreach

OBJECTIVE: Outreach to, coordination with, and gathering input from internal staff, external stakeholders, District executive management, and District Board of Directors

APPROACH: Develop a Stakeholder Review Committee comprised of representatives from a broad range of interests throughout the county. Develop a technical team comprised of District staff representing different technical areas within the District. Develop an executive management team comprised of District executive management staff. Conduct periodic meetings with these groups to obtain feedback on the WSIMP, to coordinate with other groups or projects, and to provide information on WSIMP work. Additionally, provide periodic updates to the District's Board of Directors and Board Advisory Committees.

Staff will conduct quarterly meetings with the Stakeholder Review Committee and monthly meetings with the EMT and technical team. Staff will provide updates to the Board and its Advisory Committees at major milestones.

DELIVERABLES: Meeting materials, meeting summaries, and facilitation for stakeholder committee, technical team, executive management team, and Board and Advisory Committee meetings

Water Resources Planning Projects

Fiscal Year 2010 - 2011

Project	July 2010	October 2010	January 2011	April 2011
Integrated Regional Water Management Plan Updates		• Receive information on scope and schedule of plan updates		
Water Supply and Infrastructure Master Plan	• Review/comment on planning objectives • Participate in weighting exercise of planning objectives		• Receive update on water supply outlook • Provide input on water supply and infrastructure options for consideration	• Receive update on water supply and infrastructure project/portfolio analysis
Flood Protection and Stream Stewardship Master Plan	• Receive update and provide feedback on FPSS Master Plan update	• Receive update and provide feedback on program development	• Receive update and provide feedback on draft master plan	
Urban Water Management Plan		• Receive information on draft plan		
Salt and Nutrient Management Plan		• Receive information on project plan		
San Luis Low-Point Improvement Feasibility Study		• Receive information on alternatives and federally preferred plan.	• Update on status of EIS/EIR	• Update on status of EIS/EIR

Planning Objectives

This describes the planning objectives for the Water Supply and Infrastructure Master Plan (WSIMP). The purpose of the WSIMP is to present the District's strategy for ensuring a reliable, clean water supply to meet future demands. Multiple options exist for achieving this long-term water supply reliability. The WSIMP planning objectives provide a basis for distinguishing between water supply options and, ultimately, recommending a preferred water supply strategy.

The WSIMP planning objectives are based on the District's mission and Board's Ends Policies. The District Board has adopted Ends Policies that describe desired ends, goals, and objectives related to water supply, flood protection, and water resource stewardship. The relationship between the mission, Ends Policies, and the WSIMP are illustrated in Figure 1. The District's Ends Policies, including the District mission, are included in Attachment 1.

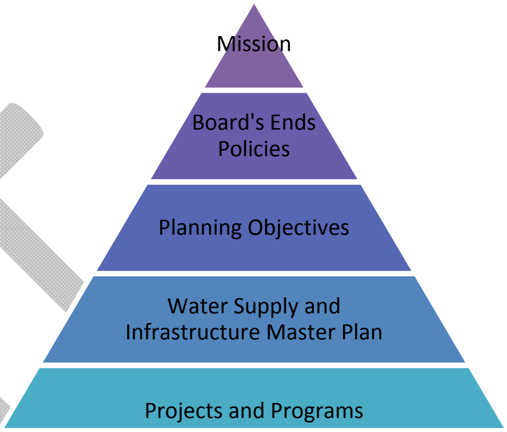

Figure 1. WSIMP Relationship to Board Policy

DRAFT

Objective 1. Ensure Water Supply Reliability

The District strives to meet water demands throughout the county under all water supply conditions. The District works to ensure water supply reliability by maximizing its influence over sources of supply and operations of its water supply system, maximizing the flexibility of the water supply and infrastructure system so that it can respond to change, and maintaining a diverse mix of water supplies. One of strengths of the District's water supply and infrastructure system is the inter-connected nature of the District's infrastructure and the variety of water supply sources. While the District is actively engaged in maintaining its imported water supplies, it is looking at regional and local projects for new supplies. Maintaining a diverse water supply, a flexible water supply system, and certainty in supply and operations minimizes the District's risk of being unable to provide a reliable supply when one water supply investment is not performing up to expectations. This objective relates to Board Ends Policies 2.1.1 "Meet current and future water demands for municipalities, industries, agriculture and the environment" and 2.1.2 "Maintain a diverse water supply including imported, local and recycled water," both of which are under Board Policy 2.1 "Reliable water supply"

Objective 2. Maximize Water Use Efficiency

The District has a history of promoting water use efficiency. Water use efficiency includes long-term water demand management measures, i.e., conservation, as well as water reuse. Currently, about 10 percent of demands are offset by long-term conservation measures. By 2030, the District anticipates that long-term conservation will offset about 20 percent of demands. These conservation savings significantly reduce the need for new supplies. The

District Board previously established a target that recycled water makes up 10 percent of the county's water supply by 2020. The District is also exploring desalination and other re-use options. In addition to making efficient use of existing resources, water use efficiency is typically resilient to changes in hydrology. This objective relates to the Board Ends Policy 2.1.3, "Maximize water use efficiency," which is under Board Ends Policy 2.1 "Reliable water supply."

Objective 3. Ensure Water Quality

The District's water quality efforts focus on maximizing the treatability of surface water supplies by protecting imported and local surface water quality, meeting drinking water quality regulations, and protecting groundwater quality. The purpose of these efforts is to protect public health and drinking water supplies for current and future beneficial use. This objective relates to Board Ends Policy 2.2, "High quality water supply."

Objective 4. Minimize Cost Impacts

The District considers two types of costs in evaluating water supply options. First is the cost to the community, or costs that are not recovered through District water charges or property taxes paid to the District. These types of costs include the cost of water shortages and costs borne by the community through other agencies' rates. For instance, the costs to produce and distribute recycled water affect sewer charges. The second type of cost is District costs that are recovered through water chargesor property taxes related to District services. This objective relates to the element of the District's mission that services are provided in a cost-effective manner.

Objective 5. Protect the Natural Environment

The District and its customers value the natural environment. While the purpose of the WSIMP is to provide for water supply reliability, it is important that the projects and programs be considered in the context of their impacts on the environment. This includes benefit to watersheds, streams, and natural resources, as well as maximizing energy efficiency as a means to reduce greenhouse gas emissions. This objective relates to Board Ends Policies 4.1 "Health creek and bay ecosystems," 4.2 "Clean, safe water in creeks and bay," and 4.3.2 "Reduce greenhouse gas emissions when reasonable and appropriate."

Objective 6. Ensure Community Benefits

The District provides multiple services to the community. In addition to environmental stewardship and water supply, the District provides flood protection services and supports recreational opportunities when possible. In developing its water supply strategy, the District will consider other benefits for the community. This objective relates to Board Ends Policies 3.2 "Reduced potential for flood damages" and 4.3.1 "Support additional trails, parks, and open space along creeks and in the watersheds when reasonable and appropriate."

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Water Resources Planning Stakeholder Review Committee
10/18/10 Meeting Summary

Prepared by Diane Moore

1. Introductions

See attached sign-in sheet for meeting participants.

2. SRC Planning Topics

SRC reviewed list of stakeholder review committee planning topics. There was interest in FAHCE and dam seismic issues. The SRC expressed interested in an integrated schedule of project/events so they can see when decisions are going to be made.

☞ Tracy Hemmeter to submit an integrated project schedule for planning at next meeting.

3. Water Supply and Infrastructure Master Plan Planning Objectives

Tracy provided an update on the master plan including the following:

- SWOT analysis is close to completion
- District is looking at future water supply needs
- UWMP schedule: the schedule has shifted out 6-months from December 2010 to June 2010; this allows the District more time to work with water retailers on their plans.
- District 2010 UWMP has preliminary results that water supplies are sufficient to meet demands in the county to 2025. Staff will need to look at water supply gap after 2025 and identify those projects that will help fill those shortages.
- Next step is to identify projects to fill the water supply gap projected after 2025.

There was some discussion and questions regarding water supply analysis for 2025; SRC felt there was some uncertainty with various water supply factors beyond our control and that shortages may occur sooner than projected. Tracy Hemmeter responded by saying that various assumptions have been incorporated into the plan with regard to imported water and climate change and it is clear there will be some uncertainty.

☞ District will present more information on the supply and demand projections, including assumptions, at the next SRC meeting.

The risk analysis should be complete by January 2010 and the intention is to present it to the SRC at the next meeting.

There were some questions with regard to water rates and future infrastructure. Tracy mentioned that although the Water Resources Planning Division is not directly involved in rate setting, we are looking at rates and costs in our asset management planning. As we gain confidence in our estimates, decision making regarding investments will be more accurate.

☞ Diane to invite Darin Taylor to a future SRC meeting to provide an update on our Long Term Forecast and financial outlook.

Tracy reviewed the revised draft planning objectives. The Planning Objectives help us look at our long-term objectives and priorities and will help us choose between different projects to reach an end (water supply reliability). This will help us determine what that end will look like.

The revised objectives include the previous six planning objectives plus one regarding ensuring community benefits. The group reviewed the objectives and completed a ranking exercise. Results will be provided at the next meeting (people were asked to use 21 dots to indicate their preferences in the objectives).

Group provided comment on the revised Planning Objectives. Staff will review comments and incorporate changes as appropriate.

4. Flood Protection and Stream Stewardship Master Plan

Luis gave an update on the Flood Protection and Stream Stewardship Master Plan (Update is attached).

Group expressed that there is a need for more public education on flooding. The people that have lived along creeks for a long time have never flooded, and are concerned with what impact a new flood basin will have on their community. Some people feel it's an exercise for something that is not going to happen. There was a suggestion to provide education through the city.

☞ Staff to send stakeholder URL to master plan in meeting minutes: Luis to get back to me.

☞ Any comments on the FP&SS Master Plan to be sent to Dcaldon@valleywater.org

5. Integrated Regional Water Management Planning Update

The District is involved in the Bay Area Integrated Regional Water Management Plan and the Pajaro Integrated Regional Water Management Plan. Both regions submitted planning grant funding applications.

The Department of Water Resources provides funding to help fund projects in the Integrated Regional Water Management Plans. Both regions are funded under Proposition 50; Proposition 84 implementation funding is pending. The District's role is to ensure its interests are being represented and that we receive our entitled funding allotment.

Stakeholder meetings are planned for January 2011 which will take place county-wide. Stormwater flood management grant applications are due in April 2011.

6. **Salt and Nutrient Management Project Plan Update**
State Water Resources Control Board adopted Recycled Water policies to look at projects as a group, not individually. The District is the lead for Santa Clara County: 1 plan on North County and 1 plan in South County.

The District will invite all recycled water producers and South County agricultural interests to develop a work plan and roles and responsibilities. The District plans to start stakeholder meetings in January 2011. Tracy mentioned that the stakeholder group will be bigger than those in SRC.

Plan calls for policies to be completed 2014. Need to have water quality objectives and plans (Salt and Nutrient Plans) completed.

7. **Recycled Water Update**
Hossein provided update on Recycled Water and the long-term agreement with San Jose. Please see enclosed presentation and Fact Sheet for information.

8. **Action Items**

- ☞ Tracy Hemmeter to submit an integrated project schedule at next meeting.
- ☞ Information regarding the 2010 Urban Water Management Plan to be sent via email. Item will be on next meeting agenda per committee's request.
- ☞ Assumptions and analysis supporting preliminary determination that the county water supply demand will be met through 2025 will be provided at 1/24/10 meeting.
- ☞ Darin Taylor will be invited to a future meeting to provide an overview of the Long Term Forecast
- ☞ URL to FP&SSMP to be sent to committee.
- ☞ Staff to revisit education component in FP&SS Master Plan. Ideas or questions on flood control to be sent to Debra Caldon at Dcaldon@valleywater.org.

9. **Next Meeting**
The next meeting will be held January 24, 2010.

Water Supply and Infrastructure Master Plan
Stakeholder Review Committee
July 19, 2010

Name	Organization	Phone Number	Email
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Catherine Elvert	City of Palo Alto	(650) 329-2417	catherine.elvert@cityofpaloalto.org
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Fernando Bravo	Milpitas	(408) 586-3328	fbravo@ci.milpitas.ca.gov
Trish Mulvey	SCBWMI	650-326-0252	mulvey@ix.netcom.com
Sandy Oblonsky	SCVWD		
Tracy Hemmeter	SCVWD	408-265-2607 x2647	themmeter@valleywater.org
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Name	Organization	Phone Number	Email
Joan Maher	SCVWD	408-265-2607 ext. 2073	jmaher@valleywater.org
Luis Jaimes	SCVWD	408-265-2607 ext. 2576	ljaimes@valleywater.org

2010 Urban Water Management Plan

The District's Urban Water Management Plan (UWMP) documents important information on water use and supply in Santa Clara County and serves as a valuable resource for water supply *planners and policy makers.*

UWMPs are prepared by California's urban water suppliers to support long-term resource planning and ensure adequate water supplies are available to meet existing and future water demands. UWMPs include an assessment of water supply reliability over a minimum 20-year planning horizon considering normal, dry, and multiple dry years.

The UWMP is a foundational document for the preparation of water supply assessments and written verifications as required by Senate Bill (SB) 610 and SB 221 for projects subject to CEQA consisting of more than 500 dwelling units or equivalent water use.

Every urban water supplier that either provides over 3,000 acre-feet of water annually or serves more than 3,000 or more connections is required to prepare and submit an UWMP. Typically, UWMPs are due on December 31 of years ending in 0 and 5.

The 13 water retailers are the primary stakeholders involved in the preparation of the UWMP. Coordination of this effort with water retailers is primarily through the Retailer Water Supply Subcommittee.

Plan Contents

The UWMP 2010 includes a general discussion on the history of Santa Clara Valley Water District as well as information on climate, demographics, and the economy of Santa Clara County. Water supply sources including groundwater, local surface water, imported water, water recycling and efforts related to desalination are described in the plan. Also included is information on historical water use, water conservation programs, demand projections, water shortage contingency and supply interruption planning, water quality, reliability and threats to reliability. In addition, the plan examines the water supply outlook in the County under different hydrologic conditions in accordance with DWR guidelines.

Linkage to Water Master Plan

A significant portion of the analysis performed and information gathered to satisfy the requirement of the Urban Water Management Planning Act will be directly applicable to the development of the Districts Water Supply and Infrastructure Master Plan (Water Master Plan). The 2010 UWMP is based on current operational assumptions and supplies and any shortages identified in the plan, and how to best address these, will be evaluated in the Water Master Plan.

SBX 7 7 granted an extension to urban retailer water suppliers for the adoption of the 2010 UWMP to July 1, 2011 in order to included technical methodologies associated with the calculation of 2015 and 2020 water use targets developed by the California Department of Water Resources (DWR). Similarly, urban water wholesalers were granted the same six month extension through SB 1478 to facilitate better coordination between water retailers and wholesalers.

Schedule

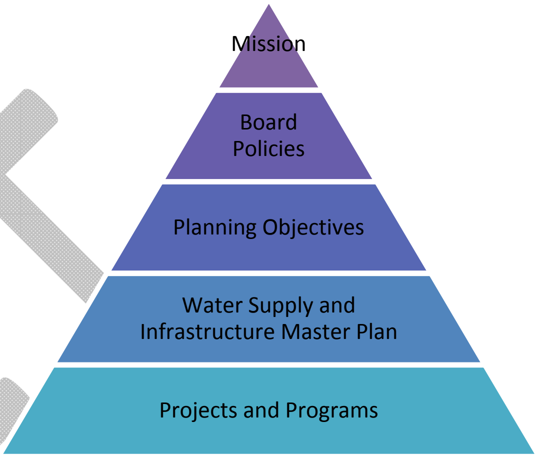
We anticipate that the formal public hearing for the UWMP 2010 will be opened, closed and adopted by the Board in March and April 2011. The public hearing will be advertised in local newspapers and notices will be provided to all cities and the county of Santa Clara, local water retail agencies, local community groups, and various local agencies and interested parties vial mail and email. The UWMP 2010 will be modified as appropriate to address comments received from the public, other agencies and water retailers. The final UWMP 2010 will be submitted to DWR by the regulatory deadline of July 1, 2011.

Santa Clara Valley Water District℠

5 Planning Objectives and Assessment Criteria

This describes the planning objectives for the Water Supply and Infrastructure Master Plan (WSIMP), along assessment criteria and the relative weighs of the planning objectives. The purpose of the WSIMP is to present the District's strategy for ensuring a reliable, clean water supply to meet future demands. Multiple options exist for achieving this long-term water supply reliability. The WSIMP planning objectives provide a basis for distinguishing between water supply options and, ultimately, recommending a preferred water supply strategy. The planning objectives also represent values that should be achieved by the WSIMP.

Figure 5-1. WSIMP Relationship to Board Policy



The WSIMP planning objectives are based on the District's mission and Board Policies. The District Board has adopted Ends Policies that describe desired ends, goals, and objectives related to water supply, flood protection, and water resource stewardship. The Board has also adopted Executive Limitations that describe the limits of the Board Appointed Officers' authority. The relationship between the mission, Board Policies, and the WSIMP are illustrated in Figure 5-1. The District's Board Policies and mission are on the District's website at http://www.valleywater.org/About/Board_of_Directors/Board_Policies/Board_Policies.aspx.

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5.1 Planning Objectives

The planning objectives, sub-objectives, and assessment criteria are described below and summarized in Table 5.1. The objectives, sub-objectives and assessment criteria were developed by the project team and reviewed by the technical team, Stakeholder Review Committee, and management team. The objectives and predictive indicators are designed to be quantitatively or qualitatively measurable, nonredundant, concise, and understandable.

Objective 1 - Ensure Water Supply Reliability

The District strives to meet water demands throughout the county under a variety of water supply conditions. The District works to ensure water supply reliability by maximizing its influence over sources of supply and operations of its water supply system, maximizing the flexibility of the water supply and infrastructure system so that it can respond to change, and maintaining a diverse mix of water supplies. One of strengths of the District's water supply and infrastructure system is the inter-connected nature of the District's infrastructure and the variety of water supply sources. While the District is actively engaged in maintaining its imported water supplies, it is looking at regional and local projects for new supplies. Maintaining a diverse water supply, a flexible water supply system, and certainty in supply and operations minimizes the District's risk of being unable to provide a reliable supply when one water supply investment is not performing up to expectations. This objective relates to Board Ends Policies 2.1.1 "Meet current and future water demands for municipalities, industries, agriculture and the environment" and 2.1.2 "Maintain a diverse water supply including imported, local and recycled water," both of which are under Board Policy 2.1 "Reliable water supply"

Sub-Objective 1.1 - Meet Service Area Demands

This sub-objective is to meet demands, including treated water contract demands, throughout the county under all water supply conditions. The District divides the county into approximately 20 service areas based on retailer service areas. Demands and supplies within each service area are modeled, based on the modeling criteria and assumptions described in Chapter XX. The modeling results in calculations of unmet demands and unmet treated water demands for each service area. The assessment criterion for this sub-objective is the frequency and magnitude of unmet demands.

Sub-Objective 1.2 - Maintain a Diverse Water Supply

Historically, Santa Clara County relied on groundwater and local streams for its water supply. Over the last half-century, the District has increased the diversity of the county's water supplies by bringing in imported water supplies. The emphasis is now shifting again and the District is looking at regional and local projects. Water supply diversity helps reduce the county's exposure to risk of any one supply investment not performing up to expectations. This sub-objective is an insurance measure that says, in effect, "Don't put all your eggs in one basket." Imported water from the Delta is the District's largest source of supply (about 40 percent on average) and a single event, such as an earthquake or levee failure, could impact all deliveries. Conversely, no single event could impact more than a portion of the groundwater basins, from which more than 40 percent of the county's water use is withdrawn. The assessment criterion for this sub-objective is the percentage of non-Delta supply as a percentage of total water supply.

Sub-Objective 1.3 - Maximize Flexibility to Respond to Change

One of the District's strengths is the inter-connectedness and variety of its water supply system. Multiple water supply sources, multiple storage and recharge facilities, and an extensive and varied infrastructure system all provide the District with the flexibility to respond to change. Some changes are short-term, such as switching sources due water quality issues or calling on reserves in dry years. Other changes are long-term, such as reservoir and recharge re-operations to meet aquatic habitat needs. In the future, the District will need to respond to climate change. The assessment criterion for this sub-objective is the degree of flexibility the District has to respond to change.

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Table 5 - 1. Planning Objectives

Objectives (Policy Source)	Sub-Objectives	Assessment Criteria
Ensure Water Supply Reliability (Ends Policy 2.1)	Meet service area demands	Frequency and magnitude of unmet demands
	Maintain a diverse water supply	Non-Delta supplies as a percentage of total water supply
	Maximize flexibility to respond to change	Degree of flexibility
Maximize Water Conservation (Ends Policy 2.1)	Minimize water use	Level of conservation savings
Ensure Drinking Water Quality (Ends Policy 2.2)	Maximize treatability	Algae in surface water
	Meet drinking water quality regulations	Levels of bromide in surface water
	Protect groundwater quality	Impact on groundwater quality
Minimize Cost Impacts (Executive Limitation 5.4)	Minimize community lifecycle costs	Total present value cost of portfolio to the community
	Minimize District lifecycle costs	Total present value cost of portfolio to the District
Protect the Natural Environment (Ends Policies 4.1, 4.2, and 4.3)	Provide benefits to watersheds, streams, and natural resources	Degree of benefit
	Maximize energy efficiency	Reduction in greenhouse gas emissions
Ensure Community Benefits (Ends Policies 2.3, 3.2 and 4.3)	Minimize land subsidence	Groundwater elevations
	Provide flood protection	Degree of flood protection
	Provide recreational benefits	Degree of recreational opportunity
Maximize Implementation Potential (District Mission)	Maximize District influence over supplies and operations	Degree of District influence over supplies and operations
	Minimize implementation complexities and barriers	Level of complexity and barriers

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Objective 2 - Maximize Water Conservation

The District has a history of promoting water conservation. By 2030, the District anticipates that current and planned conservation activities will result in nearly 100,000 acre-feet per year in savings. These conservation savings will offset demands by about 20 percent and reduce the need for new supplies. Conservation also provides other benefits, including energy conservation, reduced greenhouse gas emissions, and reduced costs. Other benefits can include improved water quality, reduced groundwater contamination, and reduced demand for wastewater treatment. In additional to making efficient use of existing water resources, water use efficiency is typically resilient to changes in hydrology. This objective relates to the Board Ends Policy 2.1.3, "Maximize water use efficiency," which is under Board Ends Policy 2.1 "Reliable water supply." The water conservation assessment criterion will be the level of conservation savings.

Objective 3 - Ensure Water Quality

The District's water quality efforts focus on maximizing the treatability of surface water supplies, meeting drinking water quality regulations, and protecting groundwater quality. The purpose of these efforts is to protect public health and drinking water supplies for current and future beneficial use. This objective relates to Board Ends Policy 2.2, "High quality water supply."

Sub-Objective 3.1 – Maximize Treatability

The constituents of source water impact the effectiveness of the water treatment processes at the District's water treatment plant. Algae, turbidity, salinity, organic carbon, and fluctuations in source water pH and temperature can create operational problems that can potentially result in plant shutdowns. The District collaborates and cooperates with other agencies to protect surface water sources. The District can manage treatability by changing water sources and maintaining storage in reservoirs. The assessment criterion for treatability is algae in surface waters that supply the drinking water treatment plants, as an indicator of treatment plant effectiveness and efficiency.

Sub-Objective 3.2 – Meet Drinking Water Quality Regulations

The District's treatment plants must comply with a long list of state and federal water quality regulations related to chemical, biological, radiological, and physical parameters prior to treatment, during treatment, and within the treated water distribution system. A key treatment challenge is to maximize the disinfection of biological contaminants such as bacteria, viruses, and protozoa, while minimizing the formation of harmful disinfection by-products such as bromate and trihalomethanes. When using ozone as the primary disinfectant, the challenge is to minimize bromate formation in the presence of high levels of bromide often found in Delta water. The District is also concerned with a number of potential threats to surface water quality, such as perchlorate, protozoan

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pathogens, endocrine disruptors, pharmaceuticals, and personal care products, each of which could require the addition of new treatment processes. The assessment criterion for this sub-objective is levels of bromide in treatment sources waters, as an indicator of treated water quality.

Sub-Objective 3.3 – Protect Groundwater Quality

The District is concerned with a number of threats to groundwater quality, including nitrate, salts, gasoline, and solvents. Nitrate, primarily from anthropogenic sources, has historically been the most contaminant most frequently detected above drinking water standards in groundwater. Residual nitrate from past practices may contribute to nitrate concentrations in groundwater for decades to come, as water slowly infiltrates from the surface. Further, ongoing land use practices including fertilizer and septic system use can contribute to nitrate in groundwater. Salts, primarily sodium and chloride, are also a concern as the use of recycled water continues to increase. Both salts and nitrate are conservative constituents in groundwater, meaning their concentrations do not decrease significantly due to natural subsurface processes. Recharge with surface water, which typically has low concentrations of both constituents, can help reduce salt and nitrate concentrations in groundwater. Treatment processes that remove salt and nitrate from groundwater or waters that will infiltrate to groundwater can also positively affect groundwater quality. The assessment criterion for this sub-objective is the impact a project or program will have groundwater quality measured by nitrate and/or salt concentrations.

Objective 4 - Minimize Cost Impacts

Cost impacts include capital and operations costs associated with a project or program, including maintenance and mitigation costs. The District focuses on total costs to businesses and residents of the county in its planning, not just District costs. In order to be able to calculate the District water charge impacts of different water supply options, it is important to track District costs and non-District (community) costs.

The District anticipates that its future water supply and infrastructure system will be comprised mostly of existing infrastructure, supplies, and operations. As such, significant investment in managing existing assets is necessary. This Master Plan will identify investments in new and upgraded assets that will meet future needs. The investments in the existing system and investments in new assets will be prioritized through the District’s Asset Management Framework. The Asset Management Framework provides a mechanism for making investment decisions based on meeting level of service requirements while minimizing lifecycle costs.

This objective relates to Executive Limitation 5.4 that the Board Appointed Officers shall not “spend extravagantly, inefficiently, or in ways more costly than necessary.”

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Sub-Objective 4.1 – Minimize District Lifecycle Costs

District costs are capital and operations costs that are recovered through the District's water charges or property taxes related to District services. The assessment criterion for this sub-objective is the total present value of the cost of the water supply portfolio for the District.

Sub-Objective 4.2 – Minimize Community Costs

Community costs are capital and O&M costs not borne by the District, as well as the cost of shortages. An example of a community cost would be another agency's costs to produce and distribute recycled water. Water shortage costs will be based on current and historic studies and tracked as part of overall costs. The assessment criterion for this sub-objective is the total present value of the cost of the water supply project or program for the community, as well as overall cost of the portfolio (group of projects or programs) when the cost of shortfalls is considered.

Objective 5 - Protect the Natural Environment

The District and its customers value the natural environment. While the purpose of the WSIMP is to provide for water supply reliability, it is important that the projects and programs be considered in the context of their impacts on the environment. This includes benefits to watersheds, streams, and natural resources such as water quality and habitat protection. It also includes maximizing energy efficiency as a means to reduce greenhouse gas emissions. This objective relates to Board Ends Policies 4.1 "Health creek and bay ecosystems," 4.2 "Clean, safe water in creeks and bay," and 4.3.2 "Reduce greenhouse gas emissions when reasonable and appropriate."

Sub-Objective 5.1 – Provide Benefits to Watershed, Streams, and Natural Resources

Santa Clara County is rich in natural resources and the District participates in and supports watershed stewardship to protect and enhance resources. These activities include protecting and restoring fisheries and aquatic species, preserving and restoring natural stream functions and processes, protecting and restoring riparian and in-stream habitat conditions, and protecting and improving water quality in streams and the Bay. The assessment criterion for this sub-objective is the degree of benefit provided to environmental resources and water quality by the construction and use of water supply projects and programs.

Sub-Objective 5.2 – Maximize Energy Use Efficiency

Climate change is caused by phenomenon known as the Greenhouse effect, which slowly warms the planet and is caused by an increase in the quantity of certain

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atmospheric Greenhouse gases (GHGs). Planning for new or future water supplies and infrastructure should consider both mitigation (the need for reduced GHG emissions) and adaptation (ability to operate efficiently and reliably in a changing climate). Adaptation is captured by the operational flexibility sub-objective (Sub-Objective 1.3), as well as risk assessments performed on the baseline water system and the preferred portfolios. The sub-objective addresses the need to reduce GHG emissions. The California Water Plan 2009 suggests that local agencies should implement cost effective, energy efficiency measures in their water projects as a means of reducing GHG emission. The assessment criterion is for this sub-objective is reduction in GHG emissions.

Objective 6 - Ensure Community Benefits

The District provides multiple services to the community. In addition to environmental stewardship and water supply, the District provides flood protection services and supports recreational opportunities when possible. The District also manages groundwater to minimize land subsidence. In developing its water supply strategy, the District will consider other benefits for the community. This objective relates to Board Ends Policies 2.3.2 "Monitor to sustain and protect groundwater resources to minimize land subsidence," 3.2 "Reduced potential for flood damages," and 4.3.1 "Support additional trails, parks, and open space along creeks and in the watersheds when reasonable and appropriate."

Sub-Objective 6.1 – Minimize Land Subsidence

Land subsidence has occurred in northern Santa Clara County as a result of significant overdrafting of the groundwater subbasin. The costs of subsidence are high, as it can lead to infrastructure damage, damage from flooding, and saltwater intrusion that degrades groundwater quality. The assessment criterion for this sub-objective is how close groundwater elevations would be to land subsidence thresholds during and/or at the end of a multi-year drought.

Sub-Objective 6.2 – Provide Flood Protection

This sub-objective will be used to capture any flood protection benefits that would be generated by water supply and infrastructure projects and programs. Flood protection benefits could be associated with water supply projects that increase reservoir storage or reduce stormwater runoff to creeks. The assessment criterion for this sub-objective is the degree of flood protection provided.

Sub-Objective 6.3 – Provide Recreational Benefits

The District supports recreational opportunities on and around its reservoirs, along creeks, and in the watersheds by providing access to District facilities and, in some cases, providing funding to fund recreation projects. The recreation programs are

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maintained and operated by other entities. The assessment criterion for this sub-objective is degree of recreational opportunities provided by the project or program.

Objective 7 - Maximize Implementation Potential

The District needs to be practical in its efforts to provide comprehensive water resources management in a cost-effective manner. In other words, the District needs to be able to implement its proposed projects and programs in order to provide the benefits associated with those projects. Costs are one consideration in the ability to implement projects and programs and are captured in Objective 4 – Minimize Cost Impacts. Implementation also potential depends on how much influence or control the District has over the project or program and how complex a project is to implement or the barriers to implementation. This objective relates to the element of the District's mission that water resource management are provided in practical manner.

Sub-Objective 7.1 – Maximize District Influence over Supplies and Operations

The District's influence over a source of water or water supply operation affects the District's ability to affect that supply's performance. For example, the District has greater ability to affect deliveries from its own reservoirs than deliveries from the State and Federal water projects. Likewise, the District has greater ability to affect expansion of the recycled water system in the South Bay Water Recycling and South County Regional Wastewater Authority service areas since it is partners in those recycled water programs. The sub-objective will give preference to supplies, projects, and programs that are within the District's control. The assessment criterion for this sub-objective is the degree to which the District can influence the intended outcome of a water supply project or program.

Sub-Objective 7.2 - Minimize Implementation Complexities and Barriers

Different types of projects and programs have different levels of implementation complexity and barriers. Very complex projects and projects with significant barriers are more difficult to implement. The types of complexities and barriers that may affect the District's ability to implement a project or program include legal and regulatory requirements, conflicts with existing policy, public perception, institutional and contractual relationships, and technical complexity. For instance, a local water exchange (i.e., an exchange with San Jose Water Company or the San Francisco Public Utilities Commission) might be easier to implement than an exchange that involves Delta water. The assessment criterion for this sub-objective is the level of complexity and barriers.

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5.2 Rankings for Planning Objectives and Sub-Objectives

Staff previously worked with stakeholders and staff to rank objectives. The Technical Team and Stakeholder Review Committee both weighted water supply reliability highest, followed by water quality. Maximizing water use efficiency, minimizing cost impacts, and protecting the natural environment averaged similar weightings and ranked below water quality. Ensuring community benefits received the lowest weighting. Following this ranking, the objective for maximizing implementation potential was added based on management review. Staff will work with staff and the stakeholders to re-rank the planning objectives and sub-objectives.

Based on the first round of ranking, some members of both the Technical Team and Stakeholder Review Committee expressed concern about planning to meet at water demands regardless of the level of development. Historically, the District has planned to meet all water demands in the cities' and County's land use plans. One concern with this approach is that costs of meeting demands will be too high. Another concern is that that the land use agencies will plan for additional development beyond sustainable water supply levels.

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Water Resources Planning Stakeholder Review Committee (SRC)
1/24/11 Meeting Summary

Prepared by Diane Moore

1. Introductions

See attached sign-in sheet for meeting participants.

2. Reassignment of Facilitator

Sandy reported that Marty Grimes will no longer be facilitating the SRC, but that he will still be participating, and that she will be stepping in as the facilitator for the group.

3. Stakeholder Feedback on Stakeholder Review Committee (SRC)

Sandy asked the group for feedback and comments on how the SRC is meeting their expectations thus far. She reiterated that the main purpose of the SRC is to vet and obtain feedback on projects across the organization and that comments will be brought to the Board.

The group asked about the Flood Protection and Stream Stewardship Master Plan. Sandy explained that project is an overall master plan, similar to Clean Safe Creeks, and has been reassigned to a high visibility task force under Rick Callendar. The Water Resources Planning Division will still be participating in the project, but will no longer be leading the effort.

Sandy reported that the Division focus is on doing planning in a more integrated way (ex. Dams, HCP, Stream Maintenance Regulations).

The group asked about dams and Sandy mentioned that we would be putting that on the agenda for a future meeting. The dams will be folded into the Water Supply Infrastructure Master Plan (WSIMP) to the extent possible.

The group asked how asset management is being integrated with watershed stewardship. Sandy reported that this is being addressed with the consolidation of asset management in Sandy's division which includes the water utility asset management program, watersheds asset management program, and the District-wide Asset Management Framework (AMF). The AMF will help the District make more informed investment decisions. On February 15, 2011 there is Board Workshop on Asset Management Framework. The District's goal is to evolve the programs, getting assets into the asset registry for each program, and then be able to project out costs for the future.

In addition, Erin Baker is working on a Capital Improvement Plan (CIP) Validation process, whereby all projects is the CIP and new projects will be evaluated as being 1) necessary and 2) cost-effective. We currently have a $2 billion total for CIP. The CIP Validation process will allow us to make critical decisions with regard to the program.

Trish Mulvey mentioned that she likes what's been brought forth to the committee and where we are headed, but is not sure with how we are getting where we need to go. Trish mentioned that she would like as much time as possible for review of documents to be brought to the committee in order to optimize the impact she can have on committee.

Trish would like information on the South County Creeks and Waterways. Sandy said she would convene an internal meeting on surface water and groundwater quality protection integration and report back on the results.

4. Water Supply Outlook

James O'Brien reviewed 2 handouts with regard to the District's Water Supply Outlook and the assumptions embedded in that analysis. Below is a summary of answers to various questions from the SRC on the outlook.

James summarized that the District will need new supplies after 2025. Population data was obtained from the ABAG 2009 projections, water retailers and raw water producers, in terms of what they anticipate.

The District has assessed that we are OK in multiple dry years as modeling shows that the health of the groundwater basin is intact; if there is no subsidence then we are OK.

Cities conduct water analyses in the form of water supply assessments when determining availability of water for new developments. James mentioned that water supply assessments are performed by the cities and the District with regard to new developments. This information is incorporated in some city General Plans etc.
City of Santa Clara reported that in the last 15 years there was roughly a 20% increase in population and a 20% decrease in water use.

James concluded his section by going over the assumptions that went into the outlook.

5. Water Supply and Infrastructure Master Plan (WSIMP) Strengths, Weaknesses, Opportunities, and Threats (SWOT) Analysis

Tracy Hemmeter reported that they have completed the supply and demand analysis, baseline system assessment including a SWOT analysis, planning objectives, modeling updates, and climate change. Tracy spent the remainder of her allotted time by reviewing the SWOT Analysis for the WSIMP with the group and incorporating comments. The SRC comments included:

- Limited recycled water distribution networks

- Expense of expanding recycled water systems, especially as grant funding availability diminishes
- Working with developers on recycled water infrastructure construction
- Groundwater recharge reuse is a community decision
- Revenue shortfalls due to droughts
- Emerging drinking water regulations, such as hexavalent chromium

An update on the WSIMP is slated to go to the Board on January 25, 2011.

6. Long Term Forecast and Financial Outlook

Darin Taylor presented information regarding the District's long term forecast and financial outlook for both the water utility and watersheds. Darin reviewed the different scenarios being presented for future water rates and the District's financial outlook.

Trish Mulvey commented that she'd like to see staff bring a double digit water rate increase to the Board and community for discussion. She would like to see District staff propose a rate increase that goes above what the District needs to just maintain current operations and includes future funding needs for projects like Dam retrofits and the HCP.

7. Planning Calendar

Tracy Hemmeter reviewed the planning calendar for upcoming meeting and provided time for comments.

8. Action Items

- ➢ Send out slides on Long Term Forecast and Water Supply Outlook (Diane Moore).
- ➢ Bring topics regarding Dams, Asset Management and CIP Validation to future meetings (Diane Moore to put on Agenda)
- ➢ Report back on internal meeting regarding water quality protection integration.

9. Next Meeting

The next meeting will be held April 18, 2011.

Water Resources Planning
Stakeholder Review Committee
January 24, 2011

Name	Organization	Phone Number	Email
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Karen Sundback	LWV	650-494-0356	sundback@gmail.com
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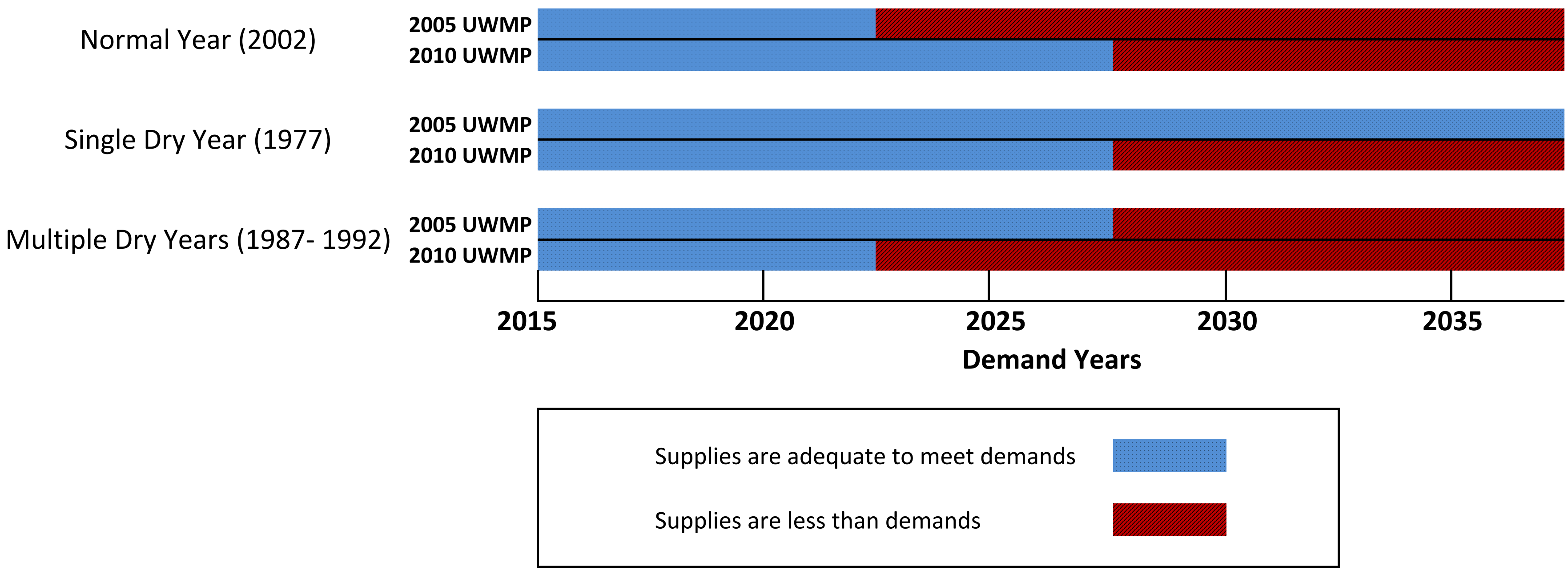
Diane Moore	SCVWD	x 3066	Dmoore@valleywater.org

Supply and Demand Comparison Summary

Historical Hydrologic Condition



Notes:

2005 UWMP assumes basin is full prior to single dry year and multiple dry years and Semitropic storage is adequate for “takes”. Draft 2010 UWMP assumes basin is at modeled storage level and Semitropic storage is at modeled level prior to the single dry year and multiple dry years.

UWMP
Modeling Assumptions Summary

		2005 UWMP	2010 UWMP (Draft)
	General		
1	**Model Format**	SYSMOD	WEAP
2	**Historical Hydrology**	1967 – 1994	1922 – 2003
3	**Normal Year**	1985	2002
4	**Single Dry Year**	1977	1977
5	**Multiple Dry Year**	1987 - 1992	1987 - 1992
6	**Demand Years**	2010, 2015, 2020, 2025, 2030	2015, 2020, 2025, 2030, 2035
	Imported Water		
7	**Imported Water Allocations**	2005 DWR reliability study(1) & CVP allocation from Imported Water Unit	2009 DWR reliability study(1) & CVP allocation from Calsim II(2) results w/ Reallocation Agreement(3)
8	**Semitropic Participation**	283 TAF	350 TAF, initial-250TAF
9	**Semitropic “put”**	From SWP only	From SWP and CVP after 40 TAF of carryover
10	**Semitropic “take”**	If TW contract is not met	If TW contract is not met and/or GW storage falls below 300 TAF and increasing as GW storage decreases
11	**San Luis Reservoir**	Not included	Storage from 2009 DWR reliability study Calsim II(2) results
12	**CVP Carryover**	17 TAF (limited to Jan. & Feb.)	Unlimited - lost if SLR storage goes to 2,000TAF
13	**SWP Carryover**	0	Unlimited - lost if SLR storage goes to 2,000TAF
14	**SFPUC Hetch-Hetchy**	2030: 73TAF	BAWSCA Long-Term Reliable Water Supply Strategy Phase I Scoping Report (May 2010), 3rd Draft ISA 2030: 58.8TAF. 2020: SJ and SC to 0.
15	**SFPUC Hetch Hetchy Historical Hydrology supplies**	Paula Kehoe letter dated Jun 1, 2005	Paula Kehoe letter dated Feb 22, 2010

UWMP
Modeling Assumptions Summary

		2005 UWMP	2010 UWMP (Draft)
	Recycled Water		
16	**Recycled Water**	Per RW producers. 2030: 31.2TAF	Based on estimates provided by county RW producers during the preparation of 2005 UWMP and draft 2010 UWMP. 2030: 29.0TAF
	Desal		
17	**Desal**	0	0
	Groundwater		
18	**GW Model used**	None	North County, Coyote, Llagas
19	**NGWY (avg.)**	58.4TAF, 1985: 47.8TAF	67.3TAF, 1985: 52.7TAF, 2002: 62.8TAF
20	**NGWY ('67-'94)**	58.4TAF	66.2TAF
21	**Net GW losses (avg.)**	0	5.5TAF, 2002: 5.9TAF - all from NC
22	**Initial GW Storage**	NC-175TAF, Llagas-90TAF, Coyote-12.5TAF	NC-268.6TAF, Llagas-75TAF, Coyote-18TAF
23	**Max GW Pumping capacity**	NC - 200TAF	NC - 200TAF
24	**GW storage capacity**	NC – 350TAF, Llagas-180TAF , Coyote-25TAF	NC-350TAF, Llagas-155TAF, Coyote-25TAF
	Reservoirs		
25	**Flood Rule Curves**	Yes	Yes
26	**Emergency Storage**	Anderson 20 TAF	Anderson 20 TAF
27	**Anderson & Calero to WTP's**	None	Anderson: up to 6 TAF/mo as storage approaches DSOD restriction level or Fld RC
28	**Reservoir siltation**	Included	Not included
29	**FAHCE**	Not included	Included in Anderson Res Ops
30	**DSOD restrictions included**	No	Yes-Almaden (1.267 TAF), Anderson (51.2 TAF and 90 TAF by demand year 2025), Calero (7.985 TAF - need to change to 5.67 TAF), Guadalupe (2.888 TAF).
31	**Almaden-Calero Canal**	Calero below Fld RC - max 6 TAF per year	Calero below Fld RC - max 6 TAF per year
	Recharge		
32	**Recharge Rates**	NC- 97.5TAF, Llagas – 40.9TAF, Coyote – 13.4TAF	NC-92.8TAF, Llagas-36.8TAF, Coyote-16.9TAF

UWMP
Modeling Assumptions Summary

		2005 UWMP	**2010 UWMP (Draft)**
	Demands		
33	**Demand Projections**	ABAG 2005, Retailers	Retailers, ABAG 2009
34	**Weather Factors**	None	None
35	**Conservation ('92 Baseline) including Ag**	2030: 98.5TAF	2030: 98.5TAF
36	**Coyote Valley**	Coyote Valley Specific Plan	Envision 2040 Preferred Alt.
37	**Water Shortage Contingency Plan Actions**	Not included	Evaluated with and without - results will be presented without
38	**Total Countywide Demands**	2030: 448.2TAF	2030: 451.8 TAF - to be updated w/ retailer provided data
	Risks		
39	**Climate Change**	None	Imported per Reliability Study(1)
40	**Assumes infrastructure will be reliable**	Yes	Yes
41	**CVP Reallocation Agreement(3) (1997 - 25 year agreement)**	Assumed to continue throughout planning horizon	Assumed to continue throughout planning horizon
42	**San Luis Reservoir low point**	Not included	Not included - potential impacts to TW deliveries will be discussed
43	**Demand greater that projections**	Not included	Not included

UWMP
Modeling Assumptions Summary

		2005 UWMP	2010 UWMP (Draft)
	Treated Water		
44	**New TW/ Demand**	Maintain GW/TW proportion for incremental increase in demand	Per retailers, 2015: per ANTICIPATED MONTHLY WATER DELIVERY SCHEDULE. Otherwise 2020-2035: maintain GW/TW proportion for incremental increase in demand
45	**Priority**	Highest priority up to contract for imported and Semitropic	Highest priority up to contract for imported and Semitropic
46	**WTP Capacity**	RWTP-75 MGD (76/9 TAF/YR), PWTP- 39 MGD (38.7 TAF/YR), STWTP- 100 MGD (93.1 TAF/YR).	RWTP-80 MGD (90TAF/YR), PWTP- 39 MGD (38.7 TAF/YR), STWTP- 100 MGD (93.1 TAF/YR).
47	**Treated Water (contract)**	2030: 147.5TAF (includes non contract)	2030: 127.8 TAF
48	**Treated Water (non contract)**	0	20TAF - 0 if SWP allocation is less than 52%

Notes:

[1] *State Water Project Delivery Reliability Report 2009 provides* current and future State Water Project delivery allocations and incorporates the restrictions on SWP and CVP operations in accordance with the biological opinions of the U.S. Fish and Wildlife Service and National Marine Fishery Service issued on Dec. 15, 2008 and June 4, 2009, respectively. The projection for future (2029) conditions also incorporates climate change and an accompanying rise in sea level.

[2] CalSim II is the model used to simulate California State Water Project (SWP)/Central Valley Project (CVP) operations based on historical hydrology. CalSim II modeling performed for the 2009 Reliability Report provides the basis for SWP and CVP allocations.

[3] Reallocation Agreement: The District entered into a 25-year water reallocation agreement in 1997 with U.S Bureau of Reclamation (Reclamation) and parties in the San Luis & Delta Mendota Water Authority to supplement and support the Bureau's draft Municipal and Industrial (M&I) Water Shortage Policy. The draft policy provides M&I allocations of 75% or more in most years, but these can drop to 50% of historic use, or to public health and safety levels, when severe water shortages are imposed on irrigation contractors.

Acronyms & Abbreviations

ABAG	Association of Bay Area Governments
Ag	Agricultural Water
BAWSCA	Bay Area Water Supply & Conservation Agency
CVP	Central Valley Project
DSOD	Department of Safety of Dams
DWR	California Department of Water Resources
FAHCE	Fisheries & Aquatic Habitat Collaborative Effort
Fld RC	Flood Rule Curve
GW	Groundwater
MGD	Million gallons per day
NC	North County
NGWY	Natural Groundwater Yield
PWTP	Penitencia Water Treatment Plant
Res Ops	Reservoir Operations
RW	Recycled Water
RWTP	Rinconada Water Treatment Plant
SC	Santa Clara
SJ Muni	San Jose Municipal Water
SLR	San Luis Reservoir
STWTP	Santa Teresa Water Treatment Plant
SYSMOD	District water supply system model
TAF	Thousand acre-feet
TW	Treated Water
WEAP	Water Evaluation and Planning Model
WTP	Water Treatment Plant

Strengths, Weakness, Opportunities, and Threats Summary

	Strengths (Internal District)	Weaknesses (Internal District)	Opportunities (External)	Threats (External)
Sources of Supply	• District has multiple sources of supply including the groundwater basin, multiple local reservoirs, recycled water, imported SWP and CVP, transfers and exchanges, the SFPUC intertie and Semitropic water banking. • District has successful conservation programs	• Limited recharge capacity in Llagas Groundwater Subbasin • South county supplies are not as diverse as in north county	• Expand recharge in north or south county • Expand existing in-county reservoirs • San Luis Reservoir low point solution • Isolated facility or other Delta improvements • Partnerships with other agencies and companies on recycled water or local surface water supplies • Partnerships with other agencies for regional and local desalination • Los Vaqueros Reservoir Expansion • Pacheco Reservoir Expansion	• Decreased availability of CVP and SWP sources due to environmental restrictions, drought, pumping constraints or infrastructure failure (seismic or age) • Potential high cost of new infrastructure (reservoirs, etc.) • Uncertainty and potential high cost of Delta improvements • Interruptible SFPUC contracts; future decreases in SFPUC supplies • Growing statewide competition for limited resources • Climate change may lead to decreased supply availability and/or saltwater intrusion
Recycled Water and Water Conservation	• Recycled water use at 5% with plans to reach 10% in the future • Advanced Water Treatment Project enhances recycled water quality, increasing potential for expansion • 40-year recycled water agreement with the City of San Jose could increase recycled water use by an additional 50,000 acre-feet year • Plans to expand recycled water system in south county • Public perception of non-potable recycled water use is generally positive • Conservation is relatively inexpensive	• Community education and outreach efforts need to be implemented for indirect potable re-use	• Stormwater re-use or greywater use • Work with cities and County to adopted and implement water conservation ordinances • Indirect potable re-use through integration of advanced treated water into District's water supply system • Local land use agency policies for low-impact development may decrease demands • Partnership with City of San Jose for expansion of non-potable recycled water use and for potential future indirect potable re-use using SBWR water • Increase conservation among agricultural users	• Recycled water regulations could limit its expansion and use • Public perception of indirect potable re-use is unknown • Conflict or competition with other agencies (local or regional) for recycled water
Operational Flexibility and Efficiency	• Dual imported sources allow for moving water around state • District's complex system and multiple sources allow for great operational flexibility in most areas • District is monitoring GHG reduction and energy efficiency • Multiple raw water sources are available to supply the WTPs and groundwater recharge operations strategies	• Pacheco pump efficiency and San Felipe system capacity constraints can limit District capabilities to take max CVP contract allotment • DSOD operating restrictions on several reservoirs • An electrical system master plan is needed to streamline electrical improvements and improve energy efficiency throughout the District • Several irrigators on raw water pipelines are not well monitored, which leads to inefficient system operations • Limited raw water processing capacity on the west side	• Connect local storage reservoirs to the raw water pipelines or improve operations to increase beneficial use of water (Uvas, Lexington) • Maximize use of Calero reservoir, as it can receive water from 5 sources • Implement new technologies to make system more efficient (automated valves, electronic data transfer, etc.) • Retailer exchanges or use of retailer systems for transfer s • Determine if Semitropic water bank can be better utilized	• Environmental requirements can increase cost and complexity of project and program implementation • Decreased reliability and increased cost of power could limit District operations • HCP may require several new infrastructure projects in order for District to continue operations (fish passage, supplemental water supply systems, etc.) • San Luis low point problem can limit District abilities to take CVP water
Infrastructure Condition and Reliability	• Pipelines that have been inspected are in acceptable condition for their ages • Control systems master plan will improve reliability • Currently working on upgrading infrastructure and adding required service factor capacity at RWTP • District has a dam safety program and other programs to maintain current infrastructure • Recharge facilities have well maintained capacity • East treated water system has redundant sources and a redundant delivery pipeline SFPUC Intertie is available for system outages	• Several dam outlet structures may need rehab • Several dam hydraulic operating systems are in poor condition and at risk of failure • Specific facilities in notably poor condition include Vasona and Almaden-Calero Canals, Vasona Pumps, Church Diversion Dam, several systems at PWTP • Most pipelines do not have cathodic protection • Pacheco, Santa Clara and Santa Teresa Tunnels have leakage that may require repair • No redundancy in some parts of system, especially on the west side treated system • Fixed treatment plant capacity • The water utility is not prepared to respond to earthquakes.	• Develop and implement a functional asset management program that replaces or rehabs infrastructure at appropriate times • HCP will provide permits for system maintenance • Add redundant pipelines where needed • West Pipeline extension or west side SFPUC connection • Westside package plant could provide some redundancy • South County water treatment plant • Implement IRP program to improve post-disaster reliability	• Potential seismic and spillway and freeboard upgrades at several dams due to DSOD regulations • Invasive species could degrade infrastructure or force isolation of facilities • South Bay Aqueduct has experienced frequent leaks • Delta levee failure could disrupt imported supplies • Sea level rise may impact some facilities • High-speed rail could impact some facilities, requiring upgrades or replacements • Catastrophic environmental threats such as earthquakes, floods, and landslides
Water Quality	• Advanced treatment processes (Ozone) were added at STWTP and PWTP	• Nitrate in south county groundwater • Dozens of groundwater cleanup sites throughout the county addressing fuel, solvents, and toxics leaks and spills	• Advanced treatment project is planned for RWTP	• Water quality contamination from potentially contaminating activities (septic systems, agriculture, recycled water use, chemical storage, etc.) • New potable water treatment regulations could impose new plant improvements including fluoridation and emerging contaminants

Water Resources Planning Stakeholder Review Committee (SRC)
4/18/11 Meeting Summary

Prepared by Diane Moore

1. Introductions

See attached sign-in sheet for meeting participants.

2. Reassignment of Facilitator

Sandy reported that Alan Kurotori will be new Deputy Operating Officer of the Water Resources Planning Division. She also reported that she was promoted to Deputy Operating Officer in Water Utility Operations and Maintenance Division and that Diane Moore will be transferring with her. Joan Maher was promoted to Deputy Operating Officer of Water Resources Management Group (Keith Whitman's old position).

3. Update on Urban Water Management Plan and Water Supply Outlook

James O'Brien reviewed the attached handout and there was ample discussion about the demand analysis. James reported that the preliminary demand projections were based on ABAG projections 2009 and the final demands are retailer projections. The group commented that there is much future uncertainty regarding the projections. James noted the importance of frequent reviews on both demands and supplies so that we avoid making unneeded investments or spending money we don't have.

There was some discussion regarding the water shortage contingency plan and the model water shortage ordinance. They are relatively close in terms of stages. The committee clarified that the retailers consider implementing their water shortage contingency actions when the District Board calls for short-term water conservation, but that their Boards/Councils make the decision at the retailer level.

In comparing projected water demands to projected water supplies available during a single dry year and an extended drought, treated water demands exceed water supplies beginning in 2020 and 2015 respectively, due to limited surface water availability. Under normal year conditions, demands exceed supplies after 2030. The committee asked how this message will be conveyed to the public, observing that the public needs to understand the need for water before they will be willing to make investments. Also, the public needs the message in more "plain" talk. Staff responded that we are working on developing the messages and outreach as part of strategic communications plan for recycled water.

The public hearing for the Urban Water Management Plan is scheduled to close on May 24th, 2011, after which the plan will be adopted by the Board and submitted to DWR by July 1, 2011.

4. **Water Supply and Infrastructure Master Plan**
Erin Baker reviewed the attached "Projects Bring Considered for Inclusion in the Water Supply and Infrastructure Master Plan". Committee members provided the following comments:

- Imported Water Contract Purchase – This is a red flag for some stakeholders due to concerns regarding the Delta; should be a footnote for all imported water projects.
- Indirect Potable Reuse – Ideally, advanced treatment would be extended to other recycled water producers, so that the water could be used to supplement groundwater rather than discharged to the Bay. Tracy noted that brine disposal is an issue with advanced treatment in southern Santa Clara County.
- Almaden Reservoir – Some stakeholders are interested Almaden Dam removal. Erin explained that, when considering the loss of yield and the high cost of removal, dam removal doesn't make sense from a water supply perspective. However, removal may make sense in relationship to other projects and programs such as the Fisheries and Aquatic Habitat Collaborative Effort (FAHCE). It was suggested that we include a line in the project description to make this connection.
- Dam Expansions – Always a stakeholder red flag.
- South County Water Quality – Tracy explained that groundwater recharge projects in southern Santa Clara County provide groundwater quality benefits by providing "dilution" with high quality (aka low nitrate) water.
- Graywater – Everyone is interested in graywater and interest extends beyond just residential use. There is a retailers working group developing a model ordinance and well as ongoing legislation that should support expanding graywater use opportunities while protection water quality, human health, and the environment.
- Local Desalination – Tracy explained we anticipate significant environmental hurdles south of the Dumbarton Bridge. The committee noted that this might be a good option in 2040 or 2050. The Chamber and District looked at this a few years ago in Alviso. One concern is would be the cost of retreating wastewater after you've already disposed of it.

The committee asked about the outreach plan for the Water Supply and Infrastructure Master Plan. Tracy explained that the current plan includes the committee, retailers, Board Advisory Committees, the Board, and anyone else who asks for a presentation. Tracy also notes that the outreach plan needs to be expanded to include more stakeholders and to better address the need to better explain the need for water in the future.

Since the group was short on time, it was agreed to schedule another meeting to review the projects and portfolios.

5. Asset Management Framework

Neddal presented the attached Asset Management Framework flow chart. The asset management plan provides for integration by listing all needs and expectations for a particular asset in one place. The asset management plan also clarifies the cost of providing a particular level of service over the planning horizon. The costs estimates and the certainty that a project is the right project for meeting the need improves as we get closer to making investments.

6. Planning Calendar

Tracy Hemmeter reviewed the planning calendar for upcoming meetings and reiterated that a special meeting would be scheduled between now and July 2011.

7. Action Items

- Send out survey regarding best time for special meeting (Tracy Hemmeter)
- Set up next meeting (Tracy Hemmeter)
- Diane Moore will no longer be assigned to the stakeholder meetings. Another resource will need to be identified.

8. Next Meeting

Please hold July 18, 2011 at 10 am for our next regular meeting. A separate notice will be sent for the special meeting that will occur before July.

Water Resources Planning
Stakeholder Review Committee
April 18, 2011

Name	Organization	Phone Number	Email
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2010 Urban Water Management Plan

Figure 4-5 Historical and Projected Water Demand for Santa Clara County

(DRAFT)

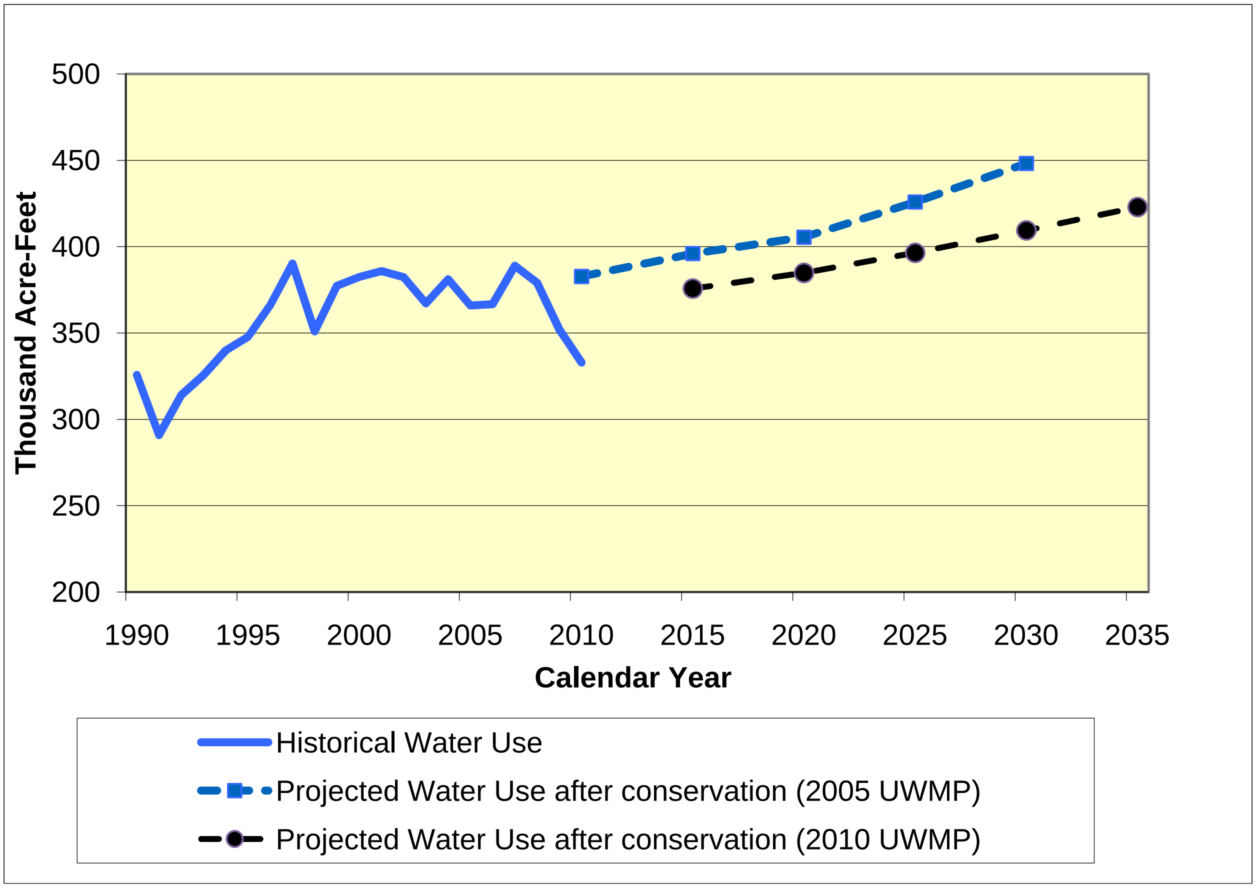


Table 10-1 Supply and Demand Comparison, Normal Year – 2002 (AF)
DRAFT

Source	Demand Year				
	2015	**2020**	**2025**	**2030**	**2035**
SWP(1),(2)	64,000	64,000	64,000	64,000	64,000
CVP(1),(2)	108,100	108,100	108,100	108,100	108,100
Local Supplies(3)	145,020	145,020	153,800	153,800	153,800
Recycled Water(4)	18,680	22,280	25,780	29,180	29,380
SFPUC(5)	61,000	63,700	63,850	63,850	63,850
New supplies/conservation per Water Master Plan	0	0	0	0	3,790
Total Supplies	**396,800**	**403,100**	**415,530**	**418,930**	**422,920**
Demand before Conservation Savings (1992 base year)	438,820	460,910	483,120	507,870	521,420
Demand after Conservation Savings(6)	**375,720**	**384,810**	**396,420**	**409,370**	**422,920**

Notes:

(1) SWP and CVP supplies based on State Water Project Delivery Reliability Report 2009 and associated CALSIM II Modeling Results under 2029 demand conditions with climate change.
(2) Assumes no additional imported supplies are secured through transfer, spot market or options.
(3) Includes Department of Safety of Dams interim reservoir operations restrictions for Almaden, Anderson, Calero, Coyote and Guadalupe. Assumes repairs to Anderson will be completed and reservoir may be operated at full capacity starting in 2025.
(4) Recycled water projections based on estimates provided by county recycled water producers and retailers. See Chapter 7 for more information.
(5) SFPUC supplies based on Interim Supply Allocations adopted by SFPUC in December 2010.
(6) Demands after conservation savings are based on projections from water retailers and include water conservation program water savings goal for both urban and agricultural conservation. See Chapter 4 and Chapter 5 for more information on demand projections and the water conservation program, respectively.

Table 6-1 Water Shortage Contingency Plan (DRAFT)

Stage	Stage Title	Projected GW Reserves	Response	Suggested Reduction in Water Use[1]	Communication and outreach effort
Stage 1	Normal	Above 300,000 AF	Continue regular outreach activities in this stage to promote ongoing implementation of conservation and implementation of BMPs.		• Maintain public information and outreach focused on long term, ongoing conservation actions (e.g., water saving appliances, repairing leaks, and low-water use landscaping).
Stage 2	Alert	250,000 to 300,000 AF	This stage is meant to warn customers that current water use is tapping into groundwater reserves – a signal that groundwater levels are dropping to meet demands. Communications are needed to set the tone for the onset of shortages. Request water users to reduce water use by as much as 10%. Coordinate ordinances with cities and warn and prepare for a stage 3 situation.	0-10% demand reduction	• Expand on Stage 1 efforts • Intensify public information and advertising campaign • Focus messages on shortage situation and immediate behavioral changes
Stage 3	Severe	200,000 to 250,000 AF	Shortage conditions are worsening, requiring close coordination with retailers and cities to enact ordinances and water use restrictions. Requires significant effort and behavioral change by water users. Increase outreach campaign to save water.	10-20% demand reduction	• Expand and intensify Stage 2 activities • Further expand outreach efforts • Modify messages to reflect more severe shortage condition and need for immediate behavioral changes
Stage 4	Critical	150,000 to 200,000 AF	This is the most severe stage in a multiyear drought. Encourage retailers and cities to enforce their plans which could include fines for repeated violations.	20-40% demand reduction	• Strengthen and expand Stage 3 activities • Further expand outreach efforts • Open drought information center
Stage 5	Emergency	Below 150,000 AF	This last stage is meant to address a more immediate crisis such as a major infrastructure failure. Water supply would be available only to meet health and safety needs.	Up to 50% demand reduction	• Daily updates on water shortage emergency (media briefings, web update, social media outlets) • Activate EOC

Note:

When the District Board calls for short-term water conservation, the cities and water retailers implement their water contingency plan actions identified in their Urban Water Management Plans in order to achieve the necessary shortage response. The District works with the water retailers and cities to help coordinate these activities.

Table 10-5 Projected Short-term Demand Reduction Summary(1)

DRAFT

Demand Year	Single Dry Year (1977)	Multiple Dry Years (1987 – 1992)					
		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
2015	0%	0%	0%	0%	0%(3)	**10%**	**10%**
2020	0%(2)	0%	0%	0%	0%(3)	**10%**	**20%**
2025	0%(2)	0%	0%	0%	0%(3)	**10%**	**20%**
2030(4)	0%	0%	0%	0%	0%	**0-10%**	**0-20%**
2035(4)	0%	0%	0%	0%	**0-10%**	**0-20%**	**0-20%**

Notes:

(1) Projected demand reductions are based on the modeling analysis performed for the 2010 UWMP with the implementation of water shortage contingency planning stages as summarized in Chapter 6.

(2) Total county wide demand can be met through treated water, groundwater, recycled water and SFPUC supplies. However, can meet only 95% of the estimated treated water contract amount in 2020 and 2025.

(3) Total county wide demand can be met through treated water, groundwater, recycled water and SFPUC supplies. However, a reduction of between 15 -20% in estimated contract treated water deliveries is indicated by the modeling results for the years 2015, 2020 and 2025.

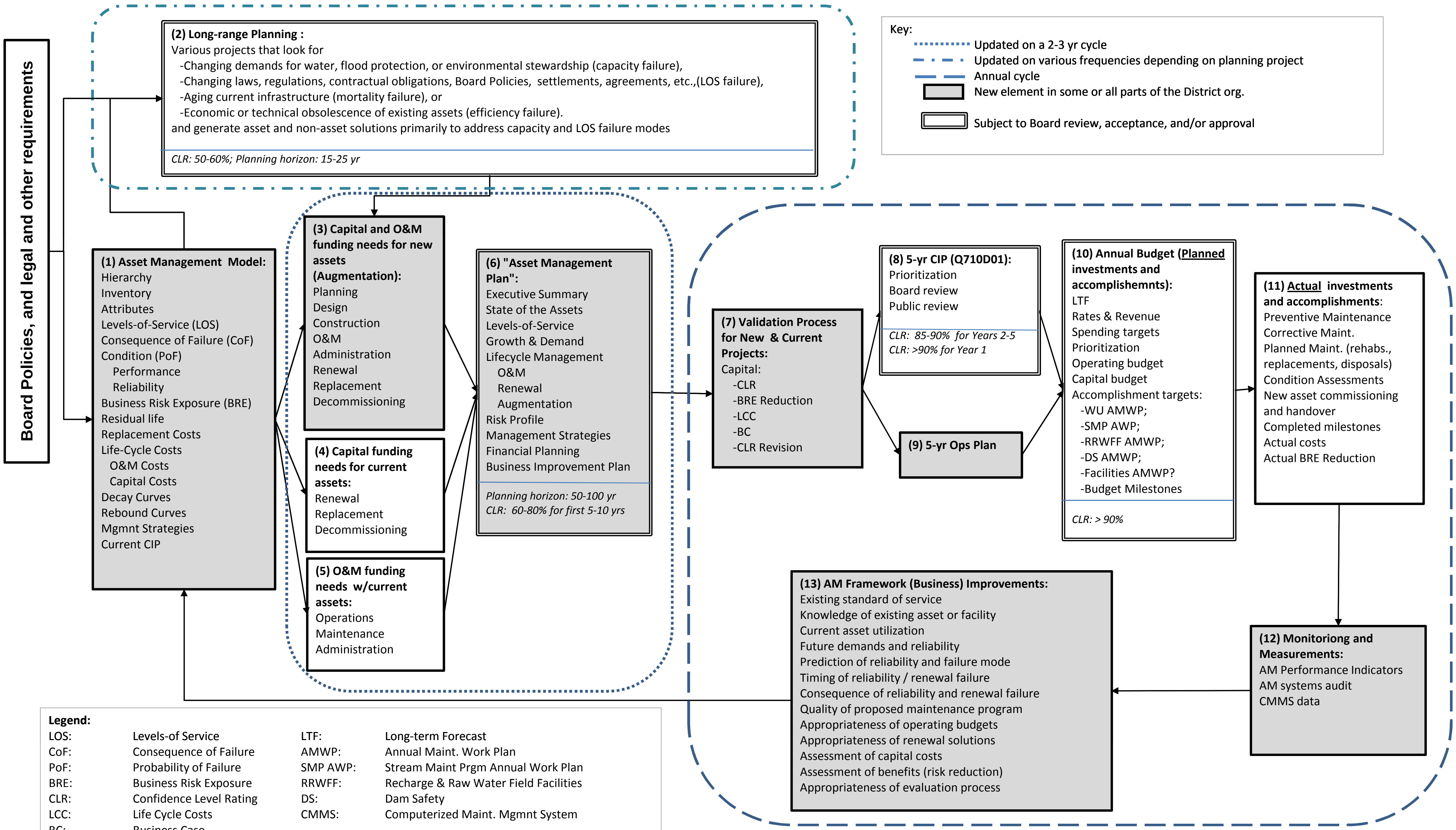
(4) These values assume the implementation of projects to be identified in Water Supply and Infrastructure Master Plan (Water Master Plan) prior to 2030. Note that projected demand reductions after the year 2025 would exceed 20% with the existing level of supplies and storage. This is outside the 0 - 20% target level identified as a planning constraint for the Water Supply and Infrastructure Master Plan (Water Master Plan). The appropriate target level of demand reductions after 2025 within the 0-20% range will be evaluated as part of the Water Master Plan benefit cost analysis work.

Projects Being Considered for Inclusion in the Water Supply and Infrastructure Master Plan

Category	Projects	Discussion
Conservation	Graywater Use	Reduce demands for residential irrigation by providing rebates for the installation of graywater systems.
Groundwater Development	Shallow Groundwater Reuse	This would put shallow groundwater to beneficial use, creating a new supply.
Groundwater Recharge	North County Recharge – New Ponds	Adds capacity for using existing and new supplies and helps maintain groundwater storage.
	South County Recharge – Extend Madrone Pipeline to Existing Ponds	Adds capacity for using existing and new supplies, though operational groundwater storage capacity may be a limitation.
Imported Water	Westside Intertie with SFPUC	Provides reliability during outages
Institutional Agreements	Regional Desalination	These projects add dry year supplies, though they are subject to pumping restrictions in the Delta and/or other conveyance issues.
	Dry Year Option Agreement	
	Exchange Contract	
	Imported Water Contract Purchase	This could increase contracted State Water Project and/or Central Valley Project agricultural supplies.
Recycled Water – Indirect Potable Reuse	Coyote Creek Ponds	These projects provide a new, highly reliable supply of water for groundwater recharge.
	Los Gatos Ponds	
	Penitencia Ponds	
	Guadalupe Ponds	
Recycled Water – Non-potable	South County Recycled Water – Morgan Hill Treatment	This would treat and distribute recycled water in the Morgan Hill area for irrigation or industrial purposes, which currently does not have access to recycled water.
	South County Recycled Water – SCRWA to Morgan Hill	This would deliver recycled water from Gilroy to Morgan Hill for irrigation and industrial purposes.
	South County Recycled Water – Hecker Pass Irrigation	This would expand the existing recycled water distribution system in Gilroy.

Category	Projects	Discussion
Reoperations	Calero Reservoir Hydraulics	This would allow for increased flows from the reservoir, which could increase the ability to use water stored in the reservoir.
	Uvas Reservoir Tie-in to the Santa Clara Conduit	Provides the ability to put excess wet weather flows into the raw water system for recharge or delivery to treatment plants. In addition, with the Uvas tie-in to the Santa Clara Conduit, the water could be stored in Anderson and Calero reservoirs which are less subject to spilling.
	Stevens Creek Reservoir Tie-in to the Stevens Creek Pipeline	
	Church Avenue Diversion Repair	Would increase the ability to conduct recharge in the Llagas Subbasin.
Storage	Remove Operating Restrictions on Calero, Guadalupe, and Almaden Reservoirs	Restores storage capacity and ability to capture some flows
	Anderson Reservoir Expansion	Add storage capacity, which helps mitigate the effects of droughts, climate change, water quality concerns, and interruptions in imported water deliveries. May also enable capture of additional local supplies.
	Calero Reservoir Expansion	
	Pacheco Reservoir Expansion	
	Uvas Reservoir Expansion	
Treated Water	Increase Santa Teresa WTP capacity	These projects enable the District to meet future treated water demands, including peaking factors specified in the treated water contracts.
	Increase Rinconada WTP capacity	
	Additional Treated Water Storage	Enable the District to meet peaking factors specified in the treated water contracts.
	Revise Treated Water Contracts	
	Additional Wells	Enables the District to meet meeting peaking factors specified in the treated water contracts, as well as providing post-disaster reliability.
	WTPs on the Westside (Stevens Creek Reservoir, Vasona Canal)	Would enable the District to meet future treated water demands, including meeting peak water demands. Would also provide additional capacity to use existing supplies and provide redundancy in the treated water system on the west side of the valley.
	South County WTP	Maximizes conjunctive use of the groundwater basin by providing an alternative delivery system when the groundwater basin is “full” and additional groundwater would not be put to beneficial use.

Asset Managment Framework Diagram



Key:

- ⋯⋯ Updated on a 2-3 yr cycle
- – · – Updated on various frequencies depending on planning project
- — — Annual cycle
- ▨ New element in some or all parts of the District org.
- ☐ Subject to Board review, acceptance, and/or approval

Board Policies, and legal and other requirements

(2) Long-range Planning :
Various projects that look for
-Changing demands for water, flood protection, or environmental stewardship (capacity failure),
-Changing laws, regulations, contractual obligations, Board Policies, settlements, agreements, etc.,(LOS failure),
-Aging current infrastructure (mortality failure), or
-Economic or technical obsolescence of existing assets (efficiency failure).
and generate asset and non-asset solutions primarily to address capacity and LOS failure modes

CLR: 50-60%; Planning horizon: 15-25 yr

(1) Asset Management Model:
Hierarchy
Inventory
Attributes
Levels-of-Service (LOS)
Consequence of Failure (CoF)
Condition (PoF)
Performance
Reliability
Business Risk Exposure (BRE)
Residual life
Replacement Costs
Life-Cycle Costs
O&M Costs
Capital Costs
Decay Curves
Rebound Curves
Mgmnt Strategies
Current CIP

(3) Capital and O&M funding needs for new assets (Augmentation):
Planning
Design
Construction
O&M
Administration
Renewal
Replacement
Decommissioning

(4) Capital funding needs for current assets:
Renewal
Replacement
Decommissioning

(5) O&M funding needs w/current assets:
Operations
Maintenance
Administration

(6) "Asset Management Plan":
Executive Summary
State of the Assets
Levels-of-Service
Growth & Demand
Lifecycle Management
O&M
Renewal
Augmentation
Risk Profile
Management Strategies
Financial Planning
Business Improvement Plan

Planning horizon: 50-100 yr
CLR: 60-80% for first 5-10 yrs

(7) Validation Process for New & Current Projects:
Capital:
-CLR
-BRE Reduction
-LCC
-BC
-CLR Revision

(8) 5-yr CIP (Q710D01):
Prioritization
Board review
Public review

CLR: 85-90% for Years 2-5
CLR: >90% for Year 1

(9) 5-yr Ops Plan

(10) Annual Budget (Planned investments and accomplishemnts):
LTF
Rates & Revenue
Spending targets
Prioritization
Operating budget
Capital budget
Accomplishment targets:
-WU AMWP;
-SMP AWP;
-RRWFF AMWP;
-DS AMWP;
-Facilities AMWP?
-Budget Milestones

CLR: > 90%

(11) Actual investments and accomplishments:
Preventive Maintenance
Corrective Maint.
Planned Maint. (rehabs., replacements, disposals)
Condition Assessments
New asset commissioning and handover
Completed milestones
Actual costs
Actual BRE Reduction

(12) Monitoriong and Measurements:
AM Performance Indicators
AM systems audit
CMMS data

(13) AM Framework (Business) Improvements:
Existing standard of service
Knowledge of existing asset or facility
Current asset utilization
Future demands and reliability
Prediction of reliability and failure mode
Timing of reliability / renewal failure
Consequence of reliability and renewal failure
Quality of proposed maintenance program
Appropriateness of operating budgets
Appropriateness of renewal solutions
Assessment of capital costs
Assessment of benefits (risk reduction)
Appropriateness of evaluation process

Legend:

LOS:	Levels-of-Service	LTF:	Long-term Forecast
CoF:	Consequence of Failure	AMWP:	Annual Maint. Work Plan
PoF:	Probability of Failure	SMP AWP:	Stream Maint Prgm Annual Work Plan
BRE:	Business Risk Exposure	RRWFF:	Recharge & Raw Water Field Facilities
CLR:	Confidence Level Rating	DS:	Dam Safety
LCC:	Life Cycle Costs	CMMS:	Computerized Maint. Mgmnt System
BC:	Business Case		

Water Resources Planning Stakeholder Review Committee

Planning Calendar

Project	April 2011	July 2011	October 2011	January 2012	April 2012	July 2012
Water Supply and Infrastructure Master Plan	Provide input on projects to meet future water demands	Receive update on evaluation of water supply portfolios	Provide input on preferred water supply portfolios	Provide input on recommended water supply portfolio	Provide input on proposed implementation program	Provide input on draft Water Supply and Infrastructure Master Plan
Urban Water Management Plan	Receive update on Urban Water Management Plan water supply reliability analysis					
Three Creeks Habitat Conservation Plan (TCHCP)				Receive update on TCHCP		
Santa Clara Valley Habitat Conservation Plan (VHP)		Receive update on VHP				
San Luis Reservoir Low-Point (SLRLP) Improvement Feasibility Study			Receive update on SLRLP improvement alternatives			
Integrated Regional Water Management (IRWM)					Provide input on projects to include in Implementation Grant applications	
Asset Management	Receive information on the Asset Management Framework					

Water Resources Planning Stakeholder Review Committee (SRC)
5/16/11 Meeting Summary

Prepared by Erin Baker

See attached sign-in sheet for meeting participants.

1. Project Development and Evaluation

Tracy Hemmeter described the process used to identify, develop, and evaluate the potential projects for the WSIMP. A summary of the process was provided on a handout (attached). A list of projects including an initial benefit and cost evaluation was also provided (attached). Tracy noted that there have been some project changes since the last list of projects was provided: the cost/AF for the graywater project has improved and a new north county recycled water project (regional connectors) was added. Committee members provided the following comments:

- Eliminated Projects – Stakeholders would like to see the list of projects that have been eliminated from the initial list due to the 'fatal flaw' preliminary analysis
- Indirect Potable Reuse (IPR) at Other Sites – It was suggested to look at IPR projects using the Palo Alto and Sunnyvale plants. Tracy explained that there are no specific projects identified for these plants, but if some level of IPR is recommended in the master plan, those areas could be studied further. Other District staff is studying the feasibility of all IPR projects and has so far found that the San Jose plant is the best candidate, however, the project team will follow up on possibilities for using the Palo Alto or Sunnyvale plants.
- IPR (General) – It was noted that the IPR projects include the cost of treatment. IPR would use advanced treated recycled water, which is better than tertiary treated water. The advanced treatment process basically provides distilled water. It was noted that other sources of water for recharge are subject to pollution from non-point sources and that wastewater treatment plants discharge into the Delta. The District is currently basing recycled water/non-recycled water blending requirements on regulations, which call for a 50/50 blend to start and can ramp up to 100% recycled. The District will keep up to date on changing regulations and anticipates that requirements would be different if/when the District gets closer to implementing an IPR project.
- Conservation – Stakeholders asked if anyone has researched the economic cost of increasing conservation, particularly the level of incentive that would be required to get people to eliminate their lawns. It would be good to demonstrate if the cost makes these ideas infeasible. The District's conservation group has said that these ideas are economically or technically infeasible at this point. However, the District continues to monitor and evaluate options, and incorporates new programs and projects as they become feasible. Also, state and local policy are important drivers for water conservation activities.

2. Overview of Portfolio Development and Next Steps

Tracy provided an overview of the process used to develop initial portfolios and the next steps for evaluating portfolios to come up with hybrid and preferred portfolios. A handout describing the portfolios, the projects that make up each portfolio, and the costs and yields associated with those portfolios was provided (attached). Committee members provided the following comments:

- Yields – One stakeholder asked to explain the yields. The yields shown in the table are lifetime yields for each portfolio. Since different projects have different lifecycles, the total yields are not comparable among portfolios. The annual costs, annual yields, and cost/AF are comparable and the District will work on presenting these more clearly as they are refined.
- Costs and Rates – Stakeholders are interested in knowing what the District currently pays to acquire water not including treatment and distribution costs, and how this relates to the calculated cost/AF for the portfolios. Stakeholders were also interested in how portfolio costs would impact rate projections. Financing and impact on rates will be calculated for the preferred portfolio, but rate impacts are not being evaluated at this stage for all portfolios.
- Portfolio Building Process –
    - One stakeholder asked why the portfolios weren't built by compiling the least expensive projects to meet the water supply need. Tracy explained that we are using a multi-objective planning process and that stakeholders had already provided feedback on the relative weights of the planning objectives. Reliability was rated highest, with cost and water quality next highest. Some projects may be less costly, but may have more risk or provide a less reliable supply. The planning process has to take all of the objectives into account.
    - One individual commented that segregating portfolios by objective doesn't allow for capturing projects with the most multiple benefits. For example, even though reliability is the highest ranked objective, projects should also be low-cost. Tracy commented that this is the ultimate goal of the portfolio evaluation process. The District hopes to end up with a preferred portfolio that meets multiple objectives.
    - One individual suggested that the District could use the frequency of projects' occurrence in portfolios as a tool to show the best projects.
- Risks – Stakeholders were interested in how risks would be captured in the analysis. Tracy reviewed some of the risks that would be modeled for the project, including groundwater contamination, treated water regulation changes, imported water outage, local emergency outage, reduction in supply or increase in demand, and climate change. The numbers the District uses for its imported water projections include some climate change risk. The District needs to be sure to plan for climate change beyond the planning horizon, which is when most climate change impacts are expected.
- Water Rates – There was a discussion about the cost of water and how low cost water can be disincentive to water use efficiency. It was noted that in Yucca

Valley, water is so expensive that no one has a lawn. On the other hand, the cost of water is a driver for economic development and cities don't want to price businesses out of their communities.

3. Action Items

- Provide list of eliminated projects (Tracy Hemmeter)
- Follow up with Tracy Ligon on feasibility of using the Palo Alto or Sunnyvale plants for IPR projects. (Tracy Hemmeter)
- Provide information on the cost of acquiring water (Tracy Hemmeter)

4. Next Meeting

Please hold July 18, 2011 at 10 am for our next meeting.

Water Resources Planning
Stakeholder Review Committee
May 16, 2011

Name	Organization	Phone Number	Email
Tracy Hemmeter -	Santa Clara Valley Water District		
GEORGE BRUHUMANN	SSWC		
TRISH MULVEY	SCBWMI		
Erin Baker	SCVWD	x2608	ebaker@valleywater.org
Tony Eulo			
Chris deGroot	City of Santa Clara		cdegroot@santaclaraca.gov
Sai Amath	SVLG		
Sue Graham	LWV		SGRAHAM@BAYNET.Com
Jennifer Williams	SCC Farm Bureau		

1. PROJECT DEVELOPMENT AND EVALUATION

1.1.Identify Projects

- Goal: Develop a list of potential projects that will help meet the future water supply shortfall identified in the water supply outlook
- Sources of projects included existing reports, staff, management, stakeholders, and the SWOT analysis

1.2.Develop Projects

- Goal: Provide additional detail on project ideas so project could be further evaluated
- Developed project description, yield, benefits, costs, other issues, schedule

1.3.Preliminary Project Evaluation

- Goal: Eliminate projects with a "fatal flaw"
- Removed approximately 25 projects from list because they lacked a water supply benefit, no defined opportunity, technically or environmentally infeasible, or high cost for same benefit as another project

1.4.Cost and Benefit Evaluation

- Goal: Determine how combine projects initial portfolios for further evaluation
- Yes/No assessment of planning objectives
- Evaluation of lifetime costs and yields, annual costs and yields, and cost/AF

2. INITIAL PORTFOLIO DEVELOPMENT

- Planning Objective Based: One or two portfolios were developed for each planning objective, with the exception of the ‘Maximize Water Conservation’ objective.
- Each portfolio is made up of projects that best achieve the stated planning objective, with a goal of trying to include each project in at least one portfolio.
- Each portfolio had to meet the following criteria:
    - i. Provide 20 – 25 TAF of additional water supply in order to meet the future supply needs identified in the water supply outlook
    - ii. Provide 15 MGD of additional treated water processing capacity in order to meet future treated water contract peaking requirements
    - iii. Provide a geographical balance of new water supplies, meaning the portfolio had to include new supply projects in both north and south counties (Approximately 6 TAF in South County and 18 TAF in North County)
- Some projects in a portfolio may not appear to support the stated planning objective. These projects had to be included to address one of the three criteria listed above.
- Some planning objectives had more projects supporting it than were needed in the portfolio. In these cases, not all projects were included. Projects were added to the portfolio until it met the criteria above.

3. NEXT STEPS

3.1.Evaluate Initial Portfolios

- Goal: Identify most beneficial projects and project combinations
- Water Supply Modeling
- Calculate costs and yields per portfolio
- Rate (score) portfolios on planning objectives
- Conduct risk analysis

3.2.Develop and Evaluate Hybrid Portfolios

- Goal: Identify portfolios with the greatest benefits
- Develop new project combinations based on results of initial portfolio evaluation
- Evaluate hybrid portfolios based on water supply modeling, costs, yields, and benefits scores
- Conduct interative analysis until three to five well-performing portfolios identified

3.3.Finalize Preferred Portfolios

- Goal: Develop three preferred portfolios
- Evaluate porfolios using groundwater and hydraulic models
- Conduct risk analysis
- Identify preferred portfolios

Preliminary WSIMP Project Benefits and Cost Summary

Category	Project No.	Project Title	Discussion	Ensure Supply Reliability			Maximize Water Conservation	Ensure Drinking Water Quality			Minimize Cost Impacts		Protect the Natural Environment		Ensure Community Benefits			Maximize Implementation Potential		Present Value Costs[1]	Average Annual Cost[2]	Average Annual Yield[3] (AF)	Average Annual Cost per AF[4]
				Meet service area demands	Maintain a diverse water supply	Maximize flexibility to respond to change	Maximize Water Conservation	Maximize surface water treatability	Meet drinking water regulations	Protect groundwater quality	Minimize District lifecycle costs	Minimize community lifecycle costs	Provide benefits to watersheds, streams, and natural resources	Reduce greenhouse gas emissions	Avoid land subsidence	Provide flood protection and recreational benefits	Ensure equitable distribution of benefits	Maximize District influence over supplies and operations	Minimize implementation complexities and barriers				
Conservation	1	Graywater Use	Reduce demands for residential irrigation by providing rebates for the installation of graywater systems.	Will be evaluated at the portfolio level	💧		💧				Will be evaluated at the portfolio level	Will be evaluated at the portfolio level		💧	Will be evaluated at the portfolio level					$ 1,000,000	$ 80,000	230	$ 350
Groundwater Development	2	Shallow Groundwater Reuse	Puts shallow groundwater to beneficial use, creating a new supply.		💧	💧														$ 3,000,000	$ 90,000	2,000	$ 50
Groundwater Recharge	3	North County Recharge from IWRP 2003	Add capacity for existing and new supplies and helps maintain groundwater storage.			💧				💧				💧				💧	💧	$ 13,000,000	$ 380,000	4,000	$ 100
	4	North County Recharge from SLRLPIP				💧				💧			💧	💧				💧	💧	$ 102,000,000	$ 2,870,000	8,000	$ 360
	5	South County Recharge - Butterfield	Adds capacity for using existing and new supplies, though operational groundwater storage capacity may be a limitation.							💧			💧	💧				💧		$ 9,000,000	$ 250,000	4,000	$ 60
	6	South County Recharge - Church Avenue Diversion Repair	Would increase the ability to conduct recharge in the Llagas Subbasin.			💧				💧				💧				💧		$ 5,000,000	$ 180,000	4,000	$ 50
	7	South County Recharge - Upper Madrone	Adds capacity for using existing and new supplies, though operational groundwater storage capacity may be a limitation.							💧			💧	💧				💧	💧	$ 5,000,000	$ 130,000	2,000	$ 70
Imported	8	Semitropic Reoperations	Sell some of the District's storage in Semitropic Water Bank to offset costs for other WSIMP projects and/or ongoing operations.															💧	💧	$ -	$ -	-	N/A
	9	West Side Intertie with SFPUC	Provides reliability during outages.			💧												💧	💧	$ 238,000,000	$ 6,670,000	-	N/A
Institutional agreements	10	Imported Water Dry Year Option Agreement	Add critical dry year supplies, though they are subject to pumping restrictions in the Delta and/or other conveyance issues.			💧												💧	💧	$ 14,000,000	$ 770,000	2,000	$ 390
	11	Imported Water Exchange Contract				💧												💧	💧	$ 2,000,000	$ 90,000	2,000	$ 50
	12	Exchange with SJWC for Lexington Water	Reduces the amount of groundwater or treated water that SJWC would take and free up processing capacity. Modeling may show project has some yield.															💧	💧	$ -	$ -	-	N/A
	13	Imported Water Contract Purchase	Increase contracted State Water Project and/or Central Valley Project agricultural supplies; would be subject to pumping restrictions in the Delta and/or other conveyance issues			💧												💧		$ 26,000,000	$ 1,390,000	6,000	$ 230
Desalination	14	Regional Desalination	Would provide treated water during critical dry years.			💧			💧									💧		$ 80,000,000	$ 2,820,000	2,000	$ 1,410

Preliminary WSIMP Project Benefits and Cost Summary

Category	Project No.	Project Title	Discussion	Ensure Supply Reliability			Maximize Water Conservation	Ensure Drinking Water Quality			Minimize Cost Impacts		Protect the Natural Environment		Ensure Community Benefits			Maximize Implementation Potential		Present Value Costs[1]	Average Annual Cost[2]	Average Annual Yield[3] (AF)	Average Annual Cost per AF[4]
				Meet service area demands	Maintain a diverse water supply	Maximize flexibility to respond to change	Maximize Water Conservation	Maximize surface water treatability	Meet drinking water regulations	Protect groundwater quality	Minimize District lifecycle costs	Minimize community lifecycle costs	Provide benefits to watersheds, streams, and natural resources	Reduce greenhouse gas emissions	Avoid land subsidence	Provide flood protection and recreational benefits	Ensure equitable distribution of benefits	Maximize District influence over supplies and operations	Minimize implementation complexities and barriers				
Recycled - Indirect Potable Reuse	15	Indirect Potable Reuse Recharge – Coyote Creek Ponds	Provide a new, all-weather supply of water for groundwater recharge.	Will be evaluated at the portfolio level	💧	💧				💧	Will be evaluated at the portfolio level	Will be evaluated at the portfolio level			Will be evaluated at the portfolio level			💧		$ 132,000,000	$ 3,700,000	9,000	$ 410
	16	Indirect Potable Reuse Recharge – Guadalupe Ponds			💧	💧				💧								💧		$ 248,000,000	$ 6,970,000	10,000	$ 700
	17	Indirect Potable Reuse Recharge – Los Gatos Ponds			💧	💧				💧								💧		$ 496,000,000	$ 13,900,000	21,000	$ 660
	18	Indirect Potable Reuse Recharge – Penitencia Ponds			💧	💧				💧								💧		$ 96,000,000	$ 2,680,000	4,000	$ 670
Recycled - Nonpotable	34	North County Recycled Water - Regional Connector	Connect South Bay Water Recycling and Sunnyvale recycled water systems.		💧	💧													💧	$ 2,500,000	$ 120,000	500	$ 240
	19	South County Recycled Water - Hecker Pass Irrigation	Extend the existing recycled water distribution system in Gilroy.		💧														💧	$ 7,000,000	$ 260,000	370	$ 700
	20	South County Recycled Water - Morgan Hill Treatment	Treats and distributes recycled water in Morgan Hill, which currently does not have access to recycled water, for irrigation and industrial purposes.		💧	💧											💧			$ 30,000,000	$ 1,640,000	240	$ 6,830
	21	South County Recycled Water - SCRWA to Morgan Hill	Deliver recycled water from Gilroy to Morgan Hill for irrigation and industrial purposes.		💧	💧											💧			$ 44,000,000	$ 1,760,000	650	$ 2,710
Reoperations	22	Stevens Creek Reservoir tie-in to Stevens Creek pipeline	Provde the ability to put excess wet weather flows into the raw water system for recharge or delivery to treatment plants. In addition, with the Uvas tie-in to the Santa Clara Conduit, the water could be stored in Anderson and Calero Reservoirs, which are less subject to spilling.			💧		💧						💧				💧		$ 16,000,000	$ 460,000	900	$ 510
	23	Uvas Reservoir tie-in to Santa Clara Conduit				💧		💧										💧		$ 46,000,000	$ 1,290,000	3,000	$ 430
Storage	24	Anderson Reservoir Expansion	Add storage capacity, which helps mitigate the effects of droughts, climate change, water quality concerns, and interruptions in imported water deliveries. May also enable capture of additional local supplies.		💧	💧		💧								💧		💧		$ 321,000,000	$ 8,770,000	7,000	$ 1,250
	25	Calero Reservoir Expansion			💧	💧		💧								💧		💧		$ 295,000,000	$ 8,070,000	150	$ 53,800
	26	Guadalupe Watershed Dam Seismic Retrofits	Restores capcaity and ability to capture some flows in Calero, Almaden, and Guadalupe Reservoirs.		💧	💧										💧		💧		$ 271,000,000	$ 7,390,000	5,000	$ 1,480
	27	Pacheco Reservoir Expansion	Add storage capacity, which helps mitigate the effects of droughts, climate change, water quality concerns, and interruptions in imported water deliveries. May also enable capture of additional local supplies.		💧	💧		💧												$ 781,000,000	$ 21,320,000	15,000	$ 1,420
	28	Uvas Reservoir Expansion			💧	💧		💧								💧		💧		$ 220,000,000	$ 6,010,000	5,000	$ 1,200

Preliminary WSIMP Project Benefits and Cost Summary

				Ensure Supply Reliability			Maximize Water Conservation	Ensure Drinking Water Quality			Minimize Cost Impacts		Protect the Natural Environment		Ensure Community Benefits			Maximize Implementation Potential					
Category	Project No.	Project Title	Discussion	Meet service area demands	Maintain a diverse water supply	Maximize flexibility to respond to change	Maximize Water Conservation	Maximize surface water treatability	Meet drinking water regulations	Protect groundwater quality	Minimize District lifecycle costs	Minimize community lifecycle costs	Provide benefits to watersheds, streams, and natural resources	Reduce greenhouse gas emissions	Avoid land subsidence	Provide flood protection and recreational benefits	Ensure equitable distribution of benefits	Maximize District influence over supplies and operations	Minimize implementation complexities and barriers	Present Value Costs[1]	Average Annual Cost[2]	Average Annual Yield[3] (AF)	Average Annual Cost per AF[4]
Treated water supply	29	Additional Wells	Enables the District to meet flow requirements specified in treated water contracts, as well as providing some post-disaster reliability.			●							●					●		$ 31,000,000	$ 1,100,000	-	N/A
	30	Increase STWTP capacity	Enables the District to meet flow requirements specified in treated water contracts.						●									●		$ 86,000,000	$ 3,020,000	-	N/A
	31	West Side Package WTPs	Provides additional capacity to use existing supplies in the west side system, and provides redundancy in the west treated water system.						●									●		$ 30,000,000	$ 1,610,000	-	N/A
	32	Revise Treated Water Contracts	Enables the District to meet flow requirements specified in treated water contracts. Adds supply reliability for south county.			●							●	●			●	●		$ 1,000,000	$ 20,000	-	N/A
	33	South County WTP	Maximizes conjunctive use of the groundwater basin by providing an alternative delivery system when the groundwater basin is "full."			●			●									●		$ 20,000,000	$ 1,070,000	-	N/A

Notes:

[1] Costs are rouned to the nearest million

[2] Average Annual Costs = Present Value Costs/Project Lifecycle (in years), rounded to the nearest ten thousand

[3] Average Annual Yield = Total Yield over Life of Project/Project Lifecycle; System modeling may show increased yields for individual projects due to projects working together

[4] Average Annual Costs/Acre-Foot = Average Annual Cost/Average Annual Yield, Rounded to Nearest Ten

AF = Acre Feet
SFPUC = San Francisco Public Utilities Commission
SJWC = San Jose Water Company
STWTP = Santa Teresa Water Treatment Plant
WSIMP = Water Supply and Infrastructure Master Plan
WTP = Water Treatment Plant

WSIMP Portfolio Evaluation: Portfolio Description

Portfolio Number	Portfolio Name	Description	Projects	Present Value ($)	Yield (AF)	Cost / Yield ($/AF)
1	Diverse Water Supply	Adds diversity to the District's water supply portfolio by adding indirect potable reuse and additional local yield from Stevens Creek Reservoir through a tie-in to the Stevens Creek Pipeline. Also includes an exchange with SJWC and package plants to make use of additional yield and supplies freed up by IPR. Additional ponds in South County are needed to meet Llagas Subbasin demands.	12. Exchange with SJWC for Lexington Water 17. IPR Recharge - Los Gatos Ponds 22. Stevens Creek Reservoir Tie-In to Stevens Creek Pipeline 31. West Side Package Water Treatment Plants 32. Revise Treated Water Contracts 6. South County Recharge - Church Avenue Diversion Repair 7. South County Recharge - Upper Madrone	$552,090,792	2,357,250	$234
2	Flexible Water Supply	Increases flexibility to respond to both short- and long-term changes by focusing on projects that provide all-weather supplies or back-up supplies. Changes could include interruptions of imported water deliveries, treated water system interruptions, and climate change impacts.	1. Graywater 2. Shallow Groundwater Reuse 9. West Side Intertie with SFPUC 14. Regional Desalination 15. IPR Recharge - Coyote Ponds 34. North County Recycled Water - Regional Connector 19. South County Recycled Water - Hecker Pass Irrigation 20. South County Recycled Water - Morgan Hill Treatment 29. Additional Wells 3. North County Recharge from IWRP 2003 6. South County Recharge - Church Avenue Diversion Repair 7. South County Recharge - Upper Madrone	$547,434,581	1,683,050	$325
3	Treated Water Quality	Maximizes treated water quality objectives by increasing the amount of local surface water storage (which increases the amount of water that can be used for blending or source shifing), adding treatment capacity to the system, and adding a source of treated water during critical dry years.	14. Regional Desalination 23. Uvas Reservoir Tie-In to Santa Clara Conduit 24. Anderson Reservoir Expansion 25. Calero Reservoir Expansion 26. Guadalupe Watershed Dam Seismic Retrofits 30. Increase STWTP Capacity 33. South County Water Treatment Plant 6. South County Recharge - Church Avenue Diversion Repair	$1,123,669,886	1,773,496	$634
4	Groundwater Quality	Improves groundwater quality by increasing groundwater recharge with high-quality water	3. North County Recharge from IWRP 2003 4. North County Recharge from SLRLPIP 5. South County Recharge - Butterfield 6. South County Recharge - Church Avenue Diversion Repair 18. IPR Recharge - Penitencia 22. Stevens Creek Tie-In to Stevens Creek Pipeline 32. Revise Treated Water Contracts	$242,127,467	1,968,500	$123

Portfolio Number	Portfolio Name	Description	Projects	Present Value ($)	Yield (AF)	Cost / Yield ($/AF)
5	Low Cost	Combination of lowest cost projects.	2. Shallow GW Reuse 3. North County Recharge from IWRP 2003 5. South County Recharge - Butterfield 6. South County Recharge - Church Avenue Diversion Repair 8. Semitropic Reoperations 11. Imported Water Exchange Contract 13. Imported Water Contract Purchase 12. Exchange with SJWC for Lexington Water 32. Revise Treated Water Contracts	$57,488,060	1,153,700	$50
6	Protect the Natural Environment	Combination of projects that protect the environment by minimizing impacts on streams, watersheds, and habitat and/or greenhouse gas emissions.	1. Graywater 3. North County Recharge from IWRP 2003 4. North County Recharge from SLRLPIP 5. South County Recharge - Butterfield 6. South County Recharge - Upper Madrone 22. Stevens Creek Reservoir Tie-In to Stevens Creek Pipeline 23. Uvas Reservoir Tie-In to Santa Clara Conduit 32. Revise Treated Water Contracts	$193,340,483	1,802,250	$107
7	Other Community Benefits	Includes reservoir expansion and retrofit projects for flood and recreation benefits, along with projects that provide equitable distribution of benefits.	3. North County Recharge from IWRP 2003 6. South County Recharge - Church Avenue Diversion Repair 7. South County Recharge - Upper Madrone 21. South County Recycled Water - SCRWA to Morgan Hill 23. Uvas Reservoir Expansion and Tie-In to Santa Clara Conduit 32. Revise Treated Water Contracts	$334,087,905	1,479,216	$226
8	Maximize Implementation Potential	Focuses on projects that have a high level of District influence/control, are easy to implement, and/or the District has successfully implemented before.	3. North County Recharge from IWRP 2003 4. North County Recharge from SLRLPIP 6. South County Recharge - Church Avenue Diversion Repair 7. South County Recharge - Upper Madrone 8. Semitropic Reoperations 9. West Side Intertie with SFPUC 10. Imported Water Dry Year Option Agreement 11. Imported Water Exchange Contract 22. Stevens Creek Reservoir Tie-In with Stevens Creek Pipeline 30. Increase STWTP Capacity	$481,186,848	1,528,750	$315

Note:

All but two of the potential projects are included in at least one portfolio. Indirect Potable Reuse - Guadalupe Ponds and Pacheco Reservoir Expansion are not currently included in any of the portfolios. If IPR and/or reservoir expansion projects score well during initial portfolio evaluation, these projects could be substituted for other projects in the next round of portfolio development and evaluation.

Water Resources Planning Stakeholder Review Committee (SRC)
7/18/11 Meeting Summary

Prepared by Tracy Hemmeter

1. **Participants**: Alan Kurotori (Santa Clara Valley Water District), Chris DeGroot (City of Santa Clara), George Belhumeur (San Jose Water Company), Karen Sundback (League of Women Voters), Ken Kelly (United Neighborhoods of Silicon Valley), Mansour Nasser (City of San Jose), Nico Procos (City of Palo Alto), Sai Amath (Silicon Valley Leadership Group), Shani Kleinhaus (Santa Clara Valley Audubon Society), Tony Eulo (City of Morgan Hill), and Tracy Hemmeter (Santa Clara Valley Water District)

2. Review of Action Items from Last Meeting

a. Projects No Longer Being Evaluated for the 2012 Water Supply and Infrastructure Master Plan (WSIMP)

- Tracy provided some highlights from Attachment 1
- The District should estimate how much investment would be needed to get noticeable water conservation savings above what is already planned. For instance, would giving away free washing machines get more people to use the high efficiency models? How much would that cost? What would the water savings be?
- The District should keep Los Vaqueros Expansion on the list of projects being considered since it could provide water during a Delta outage due to a levee failure.

b. Indirect Potable Reuse (IPR) with Water from Palo Alto or Sunnyvale Plants

The District is currently conducting an IPR (groundwater recharge with highly purified recycled water) feasibility study that is focused on using existing recharge facilities and building on the long-term recycled water agreements with San Jose. The projects that are being considered for the WSIMP are based on work being conducted as part of the IPR feasibility study. IPR projects using water from the Palo Alto and/or Sunnyvale Plants are not excluded from the WSIMP. Rather, specific opportunities have not yet been identified.

c. Costs of Acquiring Water

Tracy reported that the local water from reservoirs costs about $110 per acre-foot, though it will be higher in the future due to costs associated with implementing the Three Creeks Habitat Conservation Plan and seismic retrofits. Alan said the cost of the Three Creeks Habitat Conservation Plan will be about $50 per acre-foot and capital cost of the Anderson Dam retrofit is currently estimated at $110 million.

Imported water is about \$300 - \$350 per acre-foot. Conservation program costs range from about \$50 to \$350 per acre-foot, depending on the program.

3. Water Supply and Infrastructure Master Plan

Tracy described the portfolios the District most recently evaluated for the WSIMP (Attachment 2) and the modeling results (Attachment 3). She also explained the draft reliability target to limit calls for short-term demand reductions to an amount less than 20 percent and a frequency less than 10 percent. The committee had the following comments, questions, and observations:

- The District should develop a zero demand reduction portfolio (or a portfolio that would achieve 100 percent supply reliability.
- San Francisco Public Utilities Commission (SFPUC) did an economic analysis and is using a 20 percent short-term demand reduction target for their water supply reliability level of service. They have a different level of service target for infrastructure reliability.
- Need to be clear on the difference between long-term conservation savings and short-term demand reductions due to rationing or other short-term changes.
- Boards and Councils need to continue to ensure short-term demand reductions are equitable and do not penalize those who are already doing a good job with long-term conservation.
- The District should consider a portfolio with 50,000 acre-feet of IPR, since that is what we are entitled to under the long-term agreement with the City of San Jose
- The water supply reliability level of service target and the infrastructure reliability level of service target should be evaluated separately.
- Infrastructure reliability needs to be included in the risk analysis
- The District needs to get costs for participating in a Los Vaqueros Expansion project
- An Anderson Reservoir expansion project would change the inundation maps
- Public interests go beyond flooding and droughts; an Anderson Reservoir expansion would be a larger target for terrorists
- Uvas Reservoir expansion is not good from an ecological perspective
- The District should look a removing reservoirs (Note: District staff is planning to initiate a study to look at alternatives for managing dams in the Guadalupe watershed in light of seismic stability concerns, the Fisheries Aquatic Habitat Collaborative Effort implementation plan, and the WSIMP)
- The District should continue to maximize groundwater storage in response to costs, SFPUC operations and contracts, potential changes in contracts, and other resource management issues
- The District should discuss water exchanges during catastrophic events with SFPUC. There may be limits in the availability of water to SFPUC contract requirements and licenses

- A large IPR project should be included in the recommended portfolio, as it would be a new water supply, is local, and is green
- The District needs to do cost of shortage analysis now, so the costs can be compared with the costs of implementing a portfolio that gets closer to 100 percent supply reliability

4. Planning Calendar

- The planning calendar (Attachment 4) should be updated to include planned Board updates
- The District needs to make sure to schedule SRC meetings in sufficient time to incorporate input into District Board agenda packages. The planned October SRC meeting may be too late for the planned November Board update on portfolios

5. Action Items

- ➢ Follow-up with water conservation staff regarding estimates for how much investment would be needed to get noticeable water conservation savings above what is already planned.
- ➢ Follow-up with Contra Costa Water District regarding estimates for participating in the Los Vaqueros Expansion project
- ➢ Develop a portfolio that would not require calls for short-term demand reductions
- ➢ Develop additional information on the costs of shortages
- ➢ Update the SRC planning calendar with Board meetings
- ➢ Send out a copy of the next WSIMP Board agenda package

6. Next Meeting

Please hold October 17, 2011 at 10 am for our next meeting. This meeting maybe be rescheduled to an earlier date depending on the timing of the District Board updates on the WSIMP project.

Projects No Longer Being Evaluated in 2012 Water Supply and Infrastructure Master Plan

Project Title/Brief Description	Reason Not Being Evaluated[1]	Notes
Other demand management programs, including increased agricultural and municipal/industrial conservation and conservation through land use policies	Technical or Environmental Infeasiblity	Based on conversations with and analyses done by the District's Water Conservation Unit, planning for additional cost-effective water savings from new conservation programs beyond what is planned to meet the current 2030 target (98,500 acre-feet per year (AFY)) is not feasible at this time. This evaluate excludes graywater and rainwater harvesting, which are being evaluated separately. It will already be difficult to meet the current 2030 target, as the District has already implemented the "low-hanging fruit" programs. However, conservation is dynamic with new technologies being developed, new implementation methods being tested, and associated costs declining. It is a field the District will continue to monitor to ensure it is cost-effectively meeting its short-term and long-term water supply reliability goals. It is important to note that the District will be unable to meet the 2030 target if the current conservation budget cuts become permanent. Local land policies are difficult to rely on in terms of reducing water demands, as they on multiple agencies to implement. Water efficiency standards and policy at the State level are more effective at reducing water demands. Changes at the State level, new technologies, or cheaper technologies may result in new conservation activities becoming feasible during future updates of the Water Supply and Infrastructure Master Plan (WSIMP). In addition, the District should continue to promote local and state programs and policies that reduce water use.
Rainwater harvesting	High Cost/Low Benefit	The Water Conservation Unit has evaluated rainwater harvesting and determined that it is infeasible as a demand management measure based on high cost and low benefit. Land use agency efforts to implement low-impact development should continue to be encouraged.
Stormwater capture and re-use	Project of Opportunity Not Defined	The District should continue to evaluate co-siting stormwater recharge projects as part of developing groundwater recharge capacity and planning flood protection projects. One potential opportunity exists if Canoas Creek flood protection project is feasible.
Local desalination	Technical or Environmental Infeasiblity	Environmental constraints south of the Dumbarton Bridge. Consultant team, including Steve Richie, felt environmental permitting would be extremely difficult.

[1] See page 6 for additional explanation

Projects No Longer Being Evaluated in 2012 Water Supply and Infrastructure Master Plan

Project Title/Brief Description	Reason Not Being Evaluated[1]	Notes
Local groundwater demineralization	Technical or Environmental Infeasiblity	Groundwater pumping from deeper aquifers near Bay would induce groundwater gradient changes, drawing Bay water upgradient into basin, which would create an adverse groundwater condition. Yield from shallow brackish groundwater near the Bay is likely to be very limited. In addition, pumping groundwater under marine influence could result in chemical changes and mobilize metals and minerals that would require additional treatment. Feasibility studies, including field work, would be necessary to determine whether groundwater demineralization is a viable project to consider for long-term water supply planning.
Put artesian water south of Gilroy to beneficial use	Technical or Environmental Infeasiblity	This would involve constructing facilities to capture artesian water, constructing pipelines to bring the water to its place of use, and pumping facilities to put the water into a distribution system. Artesian conditions south of Gilroy are due to confined aquifer conditions. As conditions in the confined aquifer change due to such factors as groundwater pumping and recharge, artesian conditions also change. It is unclear whether artesian conditions will occur under future groundwater pumping and recharge scenarios. Staff anticipates future increases in groundwater pumping by the City of Gilroy. The District should continue its operations to minimize losses out of the groundwater subbasin. If artesian conditions persist in the future, this option should be re-evaluated.
Bay Delta Conservation Plan (BDCP) and other Delta Improvements	Does not Meet Future Supply Goals	This project is more an asset management project than a new water supply project. There are some benefits to water supply, including restoration of allocated deliveries, improved system reliability, and water quality. However, the purpose the project is restore this asset to its intended level of service. The assets being managed, in this case, are the District's contract rights to water from the State Water Project and Central Valley Project, as well as its contract rights to store and retrieve water from the Semitropic banking program. The BDCP would effectively protect and maintain the value of these contract rights.
Intertie w/ Alameda County Water District (Calaveras)	Project or Opportunity Not Defined	No specific project was identified. Additionally, the primary benefit would be to Milpitas/East side distribution system, which already has an intertie with San Francisco Public Utilities Commission (SFPUC).
South Bay Aqueduct (SBA)-Hetch-Hetchy Intertie	Technical or Environmental Infeasiblity	Originator of this project is unknown. An SBA-Hetch-Hetchy connection is not feasible as this would be connecting raw and treated water systems. Additionally, neither facilities are owned by the District. The only project that may be similar to this is expanding the existing east side intertie, but this has not been suggested as a project by anyone.

[1] See page 6 for additional explanation

Projects No Longer Being Evaluated in 2012 Water Supply and Infrastructure Master Plan

Project Title/Brief Description	Reason Not Being Evaluated[1]	Notes
Los Vaqueros Expansion	Project or Opportunity Not Defined	As of 3/25/11, Contra Costa Water District (CCWD) does not have any specifics available to potential partners for an expanded Los Vaqueros Reservoir but is willing to meet to discuss our needs and explore mutually beneficial opportunities. The Los Vaqueros Expansion (LVE) Project evaluated expanding Los Vaqueros Reservoir from its existing capacity of 100,000 acre-feet to 160,000 acre-feet and to 275,000 acre-feet. On March 31, 2010, the CCWD Board of Directors approved the 160,000 expansion but also decided to continue exploring opportunities for expanding Los Vaqueros to 275,000 acre-feet in the future. CCWD is securing the last of its required permits and expects to break ground on construction of the 160,000 acre-foot reservoir in 2011. Although the 160,000 acre-foot expansion has been characterized as having emergency and dry-year storage opportunities for local Bay Area agencies, CCWD has not yet defined the opportunity. CCWD staff did not have specific quantities of storage available other than an estimate of up to 40,000 acre-feet though CCWD still needs to define their own needs. CCWD plans to resume studying expansion to 275,000 acre-feet once the BDCP is defined. There are funds remaining to complete that feasibility study. The larger expansion alternative is expected to have a greater opportunity for partnerships, but obviously it's premature to define what those benefits may be. The District should continue conversations with CCWD, especially since LVE could provide a dry year option.
Other Banking Programs	Project or Opportunity Not Defined	No opportunities have been identified at this time.
Almaden-Calero tie-in to Almaden Pipeline	Does not Meet Future Supply Goals	This project would not have long term water supply benefits. It is intended to be a "work around" for the operating restriction at Calero Reservoir. This should be re-evaluated after the District determines whether it will be conducting seismic retrofits at Calero to remove the operating restriction permanently.
Calero reoperation - improve hydraulics of outlet system	Does not Meet Future Supply Goals	Project on its own does not provide significant water supply benefit. This project could be included with a Calero Dam retrofit or expansion to allow more water to be taken into the pipelines.
Lexington reservoir tie-in to Vasona pump station/distribution system	Does not Meet Future Supply Goals	Project does not provide additional water supply yield on its own. Project will be studied as part of the Indirect Potable Reuse (IPR) Project.

[1] See page 6 for additional explanation

Projects No Longer Being Evaluated in 2012 Water Supply and Infrastructure Master Plan

Project Title/Brief Description	Reason Not Being Evaluated[1]	Notes
Pipeline connecting Uvas & Calero reservoirs	High Cost/Low Benefit	This project provides the same benefits as a pipeline connecting Uvas Reservoir to the Santa Clara Conduit (SCC), but is much more expensive. Both projects provide the benefit of putting extra wet year water in the Uvas watershed to beneficial use. The Uvas-SCC connection is estimated at $161M while the Uvas-Calero connection is estimated at $47M. The large price difference is due to a longer pipeline and a booster pump station needed for the Uvas-Calero option. Additionally, the Uvas-SCC connection has the added benefit of being able to use the water in the south county ponds or Anderson Reservoir as it ties into the distribution system upstream of those connections. The Uvas-Calero connection would only enable use of water in the northern part of the distribution system.
San Luis Reservoir Low Point Project Combination Alternative, including recharge and wells	N/A	Project is being evaluated in pieces in the WSIMP. The combination alternative consists of wells and recharge ponds. These elements will be considered separately in planning.
Westside reoperations to increase processing capacity	N/A	This concept is being evaluated as a portfolio rather than a project. An example would be the Stevens Creek PL-reservoir Pipeline, Package Plants, IPR, and additional recharge.
Chesbro & Uvas dam seismic upgrades (remove restrictions)	Does not Meet Future Supply Goals	These reservoirs do not currently have operating restrictions. As such, removing the restrictions would not increase reservoir capacity.
Stevens Creek dam seismic upgrades (remove restrictions)	Does not Meet Future Supply Goals	This reservoir does not currently have operating restrictions. As such, removing the restriction would not increase reservoir capacity.
Calero and one other dam seismic upgrade plus remove one dam	Does not Meet Future Supply Goals	Only potential benefit would be to the environment and costs are very high. Decreases local water supply.

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[1] See page 6 for additional explanation

Projects No Longer Being Evaluated in 2012 Water Supply and Infrastructure Master Plan

Project Title/Brief Description	Reason Not Being Evaluated[1]	Notes
Increase Penitencia Water Treatment Plant (PWTP) capacity	Technical or Environmental Infeasiblity	PWTP is located on an active landslide. Historically, we know the plant responds well to landslide movements and there is minimal impact to the plant. However, because of the landslide, recent plant upgrades constructed under the Water Treatment Improvement Project Stage 2 (WTIP2) did not include provisions for increasing plant capacity in the future. In addition, the plant is located near the active Hayward fault, which presents a high danger to the site. This fault is overdue as far as exceeding the estimated recurrence interval for generating a large earthquake. No one knows how the landslide, and plant, will respond to a major earthquake on the Hayward fault. Recent seismic upgrades during WTIP have likely addressed the overall seismic concerns but the big unknown is still how the Hayward fault would adversely affect landslide movement. Because of the unknowns associated with the landslide movement in the next major earthquake, it would not be prudent to plan any new structures on this landslide, particularly since the District has other options, which include Santa Teresa Water Treatment Plant capacity increase, changing retailer contracts, and adding treated water storage.
SFPUC connection to Bay Division pipeline upstream of Milpitas turnout	Does not Meet Future Supply Goals	District already has an east side intertie with SFPUC upstream of the Milpitas turnout. There is no need for a second connection in the same location. This project would not provide new supply.
Increase Rinconada Water Treatment Plant (RWTP) capacity	Does not Meet Future Supply Goals	Treatment plant capacity needs on the West side are projected to remain flat over the planning horizon. The West side treated water system needs a capacity of 82 million gallons per day (MGD) to meet future maximum daily demands. With the San Tomas well field in place (capacity of 1.5 - 3.9 MGD), the current west side system is capable of providing 82 MGD. A plant expansion is being studied under a separate project for increased west system reliability, but is not needed to meet future treated water demands.
Additional treated water storage to meet increased demands	High Cost/Low Benefit	This project provides the same benefits as additional wells, but is twice as expensive. Both projects provide additional treated water system capacity distributed along the system; however, this project is less reliable than well fields in earthquakes or disasters.

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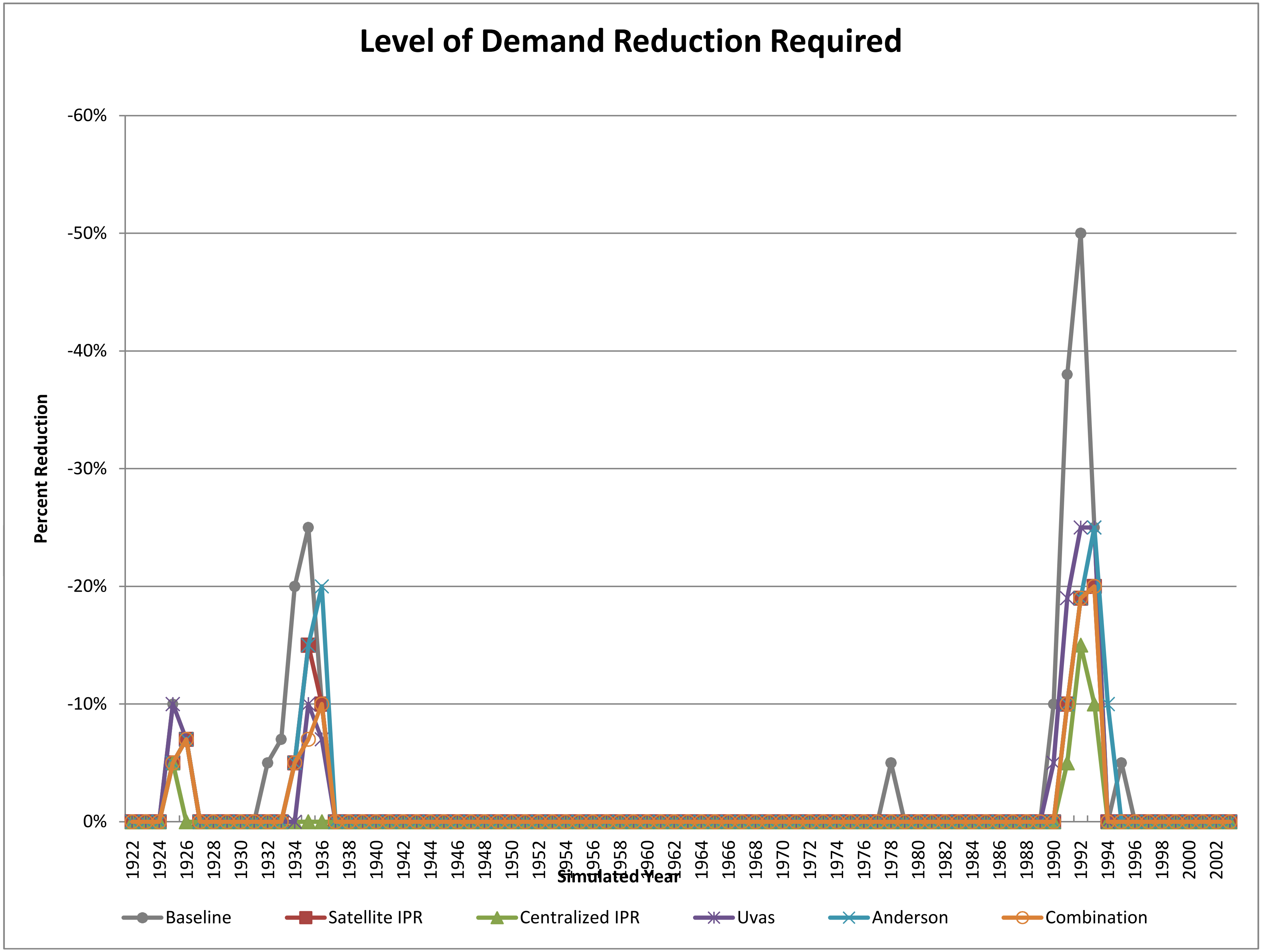
[1] See page 6 for additional explanation

REASONS PROJECTS ARE NO LONGER BEING EVALUATED:

Technical or Environmental Infeasibility:	Many projects are not being evaluated due to a technical or environmental issue. For example, an expansion of the Penitencia Water Treatment Plant was found to be technically infeasible due to its location on an active landslide and because previous plant improvements did not account for plant expansion. As another example, environmental constraints south of the Dumbarton Bridge would make permitting a local desalination project nearly impossible. Some projects that fall in this category could become feasible in the future, pending future studies or changed future conditions.
Does not Meet Future Supply Goals:	Projects that do not provide any new yield or contribute to meeting future treated water contract demands are not being evaluated. Some projects were found to provide added system reliability, reduce risk, or maintain an existing asset, but did not provide new future supply or help meet contract requirements. Projects to improve system reliability, reduce risk, and rehabilitate assets are being evaluated by other District programs and are therefore not being evaluated in the WSIMP.
Project or Opportunity Not Defined:	Several general projects were suggested, but when staff researched these projects, they could not find actual new opportunities. One example of this is additional groundwater banking programs. While an additional banking program is a good idea, staff could not identify any additional banking programs in which the District could participate.
High Cost/Low Benefit:	Some projects had a high cost for very little to no benefit. Some projects had a higher cost than another project that achieved the same benefits. One example of this is a pipeline connecting Uvas Reservoir to the Cross Valley Pipeline. A pipeline connecting the reservoir to the Santa Clara Conduit has the same benefits, but costs much less.

WSIMP Portfolio Evaluation: Portfolio Description

Portfolio Name	Description	Projects (Average Annual Yield)	Present Value ($)
Indirect Potable Reuse - Satellite Treatment Facility	Includes 14,000 acre-feet per year (AFY) of groundwater recharge with advanced treated recycled water. Water would be treated at satellite facilities and used for recharge in the Coyote Creek and Penitencia Pond systems. Additional groundwater recharge ponds provide additional capacity to store available water and maintain groundwater storage. An imported water dry-year option provides surface water during extended droughts. Treated water contracts would be revised to reduce daily peak flow requirements.	• Indirect Potable Reuse in Coyote Creek Ponds (10,000 AFY) • Indirect Potable Reuse in Penitencia Ponds (4,000 AFY) • North County Recharge Ponds (8,000 AFY) • South County Recharge Ponds (6,000 AFY) • Imported Water Dry-Year Option (1,000 AFY) • Treated Water Contract Revisions	$358,385,686
Indirect Potable Reuse - Centralized Treatment Facility	Includes 24,000 AFY of groundwater recharge with advanced treated recycled water. Water would be treated at a centralized facility and used for recharge in the Los Gatos Ponds. This also includes delivering water from Lexington Reservoir to San Jose Water Company, to make use of Lexington water that would otherwise have been sent downstream to the Los Gatos Ponds. Additional groundwater recharge ponds provide additional capacity to store available water and maintain groundwater storage. The imported water exchange contract make use of wet year water and develop dry-year surface supply, by exchanging 2 units of wet year water for 1 unit of dry year water. Treated water contracts would be revised to reduce daily peak flow requirements.	• Indirect Potable Reuse in Los Gatos Ponds (24,000 AFY) • Lexington Reservoir Exchange with SJWC • South County Recharge Ponds (6,000 AFY) • Imported Water Exchange Contract (2,000 AFY) • Treated Water Contract Revisions	$507,839,229
Uvas Reservoir	Includes expanding Uvas Reservoir from about 10,000 AF to about 15,000 AF and connecting Uvas Reservoir to the Santa Clara Conduit. Additional groundwater recharge ponds provide additional capacity to storage available water and maintain groundwater storage. Treated water contracts would be revised to reduce daily peak flow requirements.	• Expand Uvas Resevoir (5,000 AF) • Pipeline from Uvas to the Santa Clara Conduit (2,500 AFY) • North County County Recharge Ponds (8,000 AFY) • South County Recharge Recharge Ponds (6,000 AFY) • Treated Water Contract Revisions	$382,762,805
Anderson Reservoir Expansion	Includes expanding Anderson Reservoir from about 100,000 AF to about 200,000 AF. Additional groundwater recharge ponds provide additional capacity to store available water and maintain groundwater storage. An imported water dry-year option provides surface water during extended droughts. Santa Teresa Water Treatment Plant treatment capacity would be increased to meet daily peak flow requirements in contracts.	• Anderson Reservoir Expansion (7,000 AFY) • North County Recharge Ponds (8,000 AFY) • South County Recharge Ponds (6,000 AFY) • Imported Water Dry-Year Option (4,000 AFY) • Expand Santa Teresa Water Treatment Plant	$565,195,281
Combination	Combination of low cost projects, projects that reduce or offset potable water demands, and projects that provide flexibility.	• Graywater Reuse (230 AFY) • Shallow Groundwater Reuse (1,500 AFY) • North County Recharge Ponds (4,000 AFY) • South County Recharge (6,000 AFY) • Imported Water Dry-Year Option (1,000 AFY) • Imported Water Contract Purchase (6,000 AFY) • Regional Desalination (2,000 AFY) • Recycled Water Projects (900 AFY) • Treated Water Contract Revisions	$160,371,315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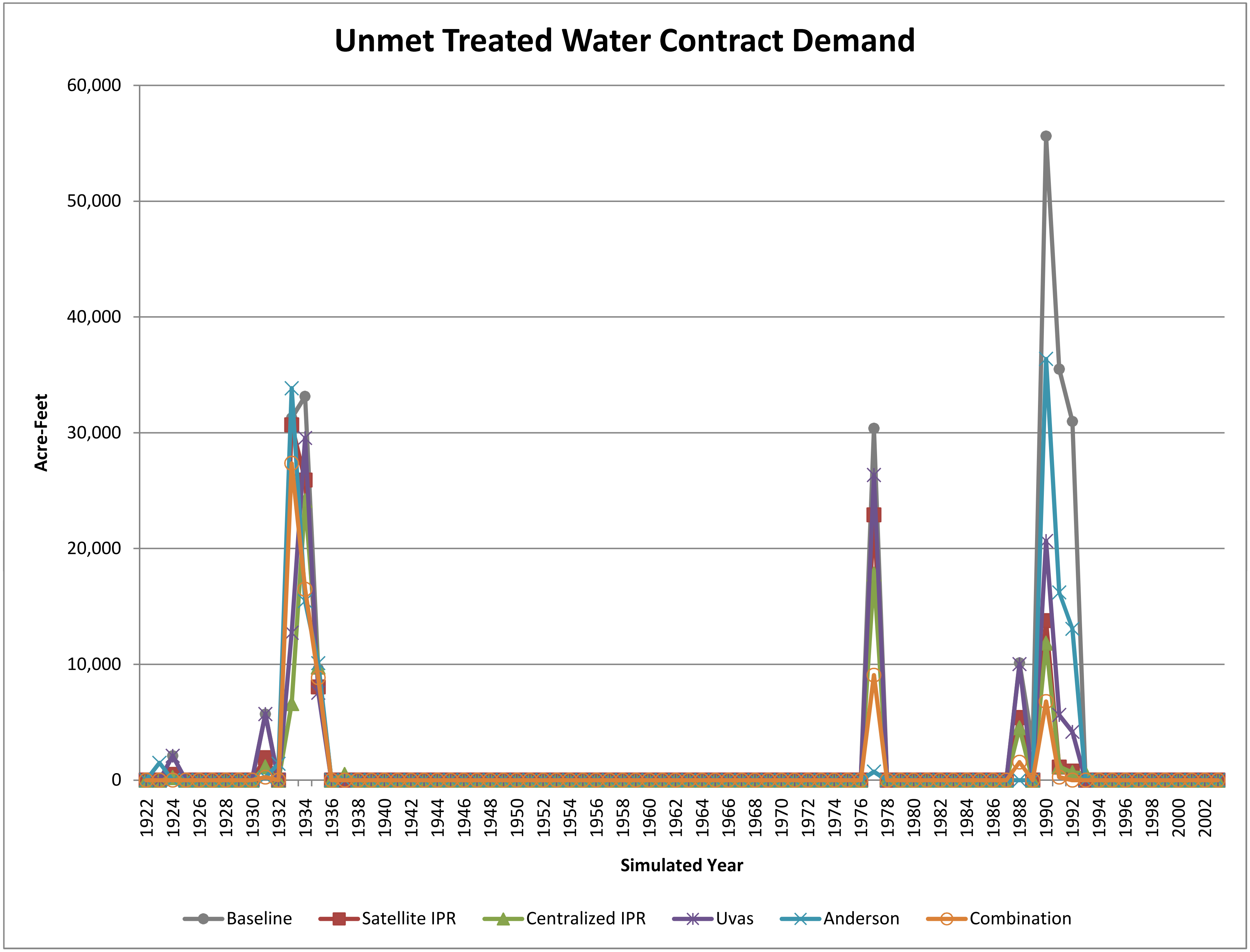
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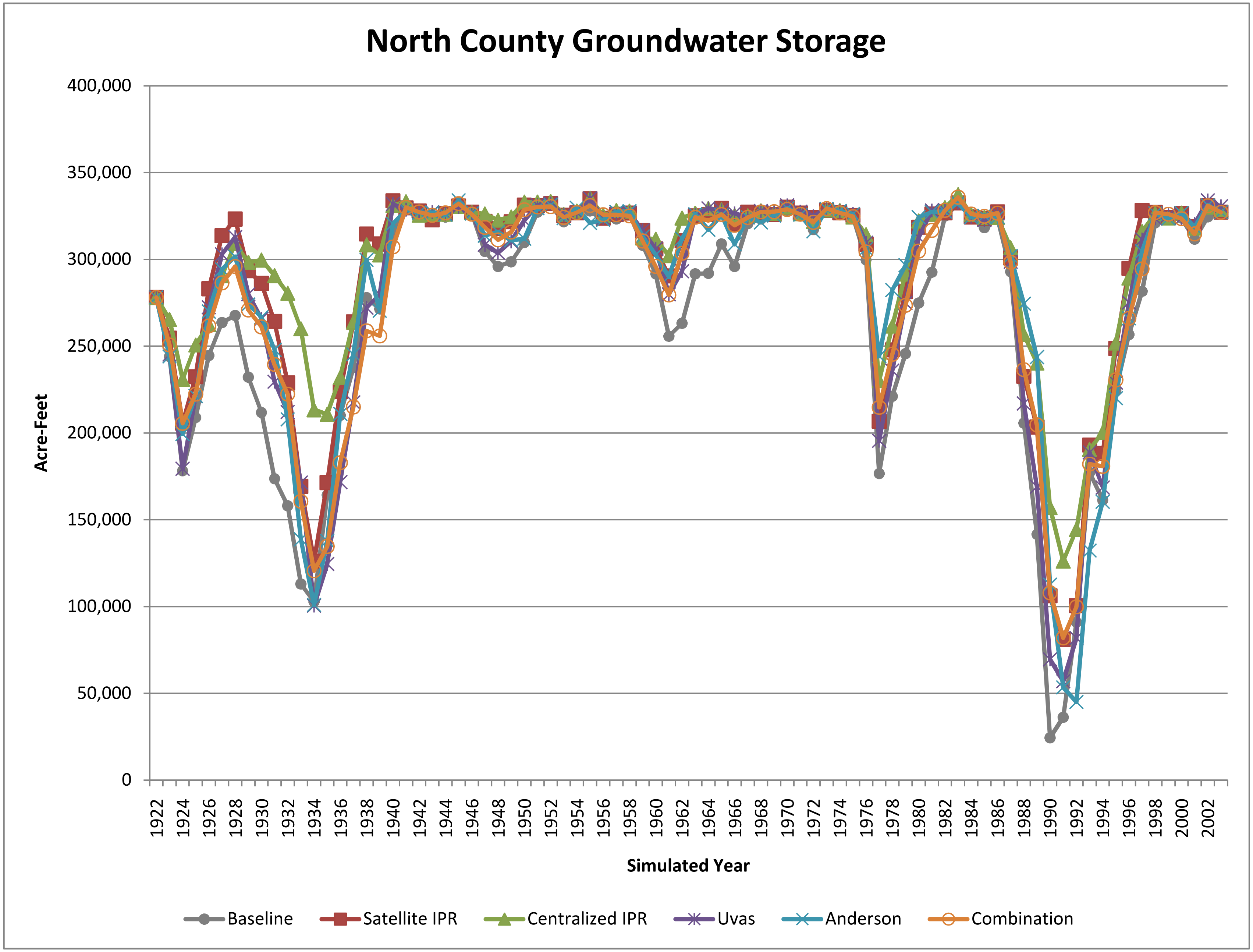
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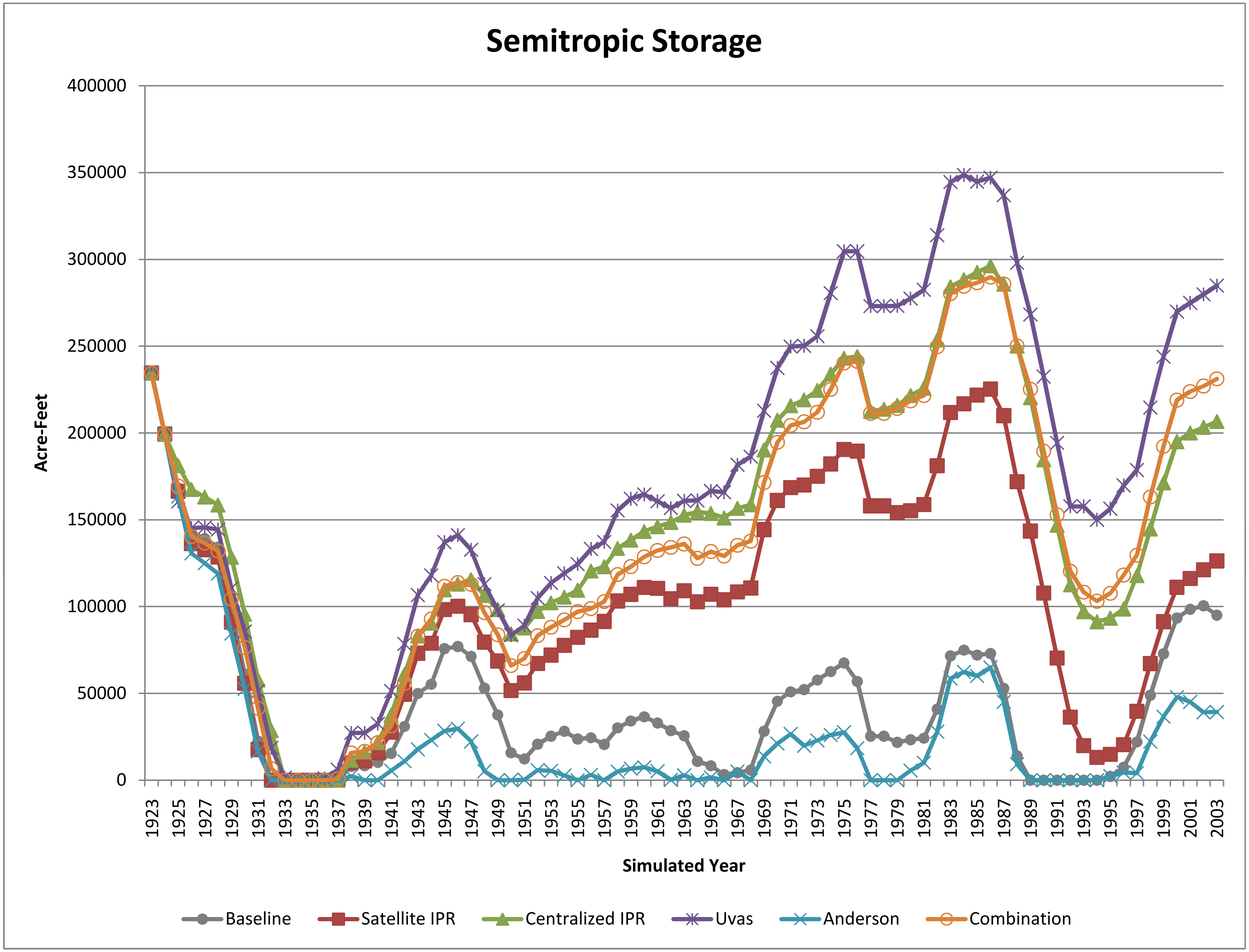
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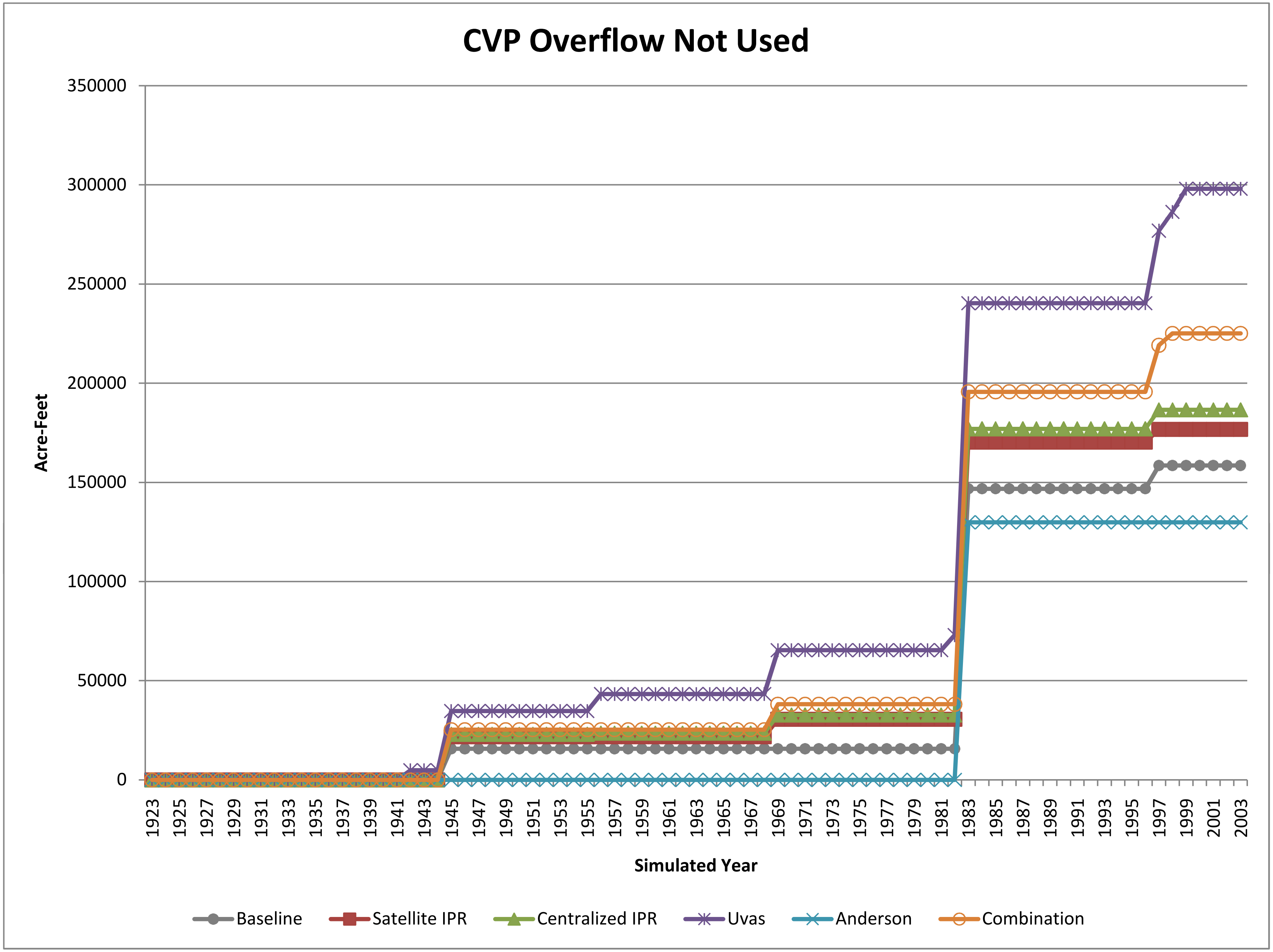
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Water Resources Planning Stakeholder Review Committee

Planning Calendar

Project	July 2011	October 2011	January 2012	April 2012	July 2012
Water Supply and Infrastructure Master Plan	Receive update on evaluation of water supply portfolios	Provide input on preferred water supply portfolios	Provide input on recommended water supply portfolio	Provide input on proposed implementation program	Provide input on draft Water Supply and Infrastructure Master Plan
Urban Water Management Plan					
Three Creeks Habitat Conservation Plan (TCHCP)			Receive update on TCHCP		
Santa Clara Valley Habitat Conservation Plan (VHP)		Receive update on VHP			
San Luis Reservoir Low-Point (SLRLP) Improvement Feasibility Study		Receive update on SLRLP improvement alternatives			
Integrated Regional Water Management (IRWM)				Provide input on projects to include in Implementation Grant applications	
Asset Management					

Water Resources Planning Stakeholder Review Committee (SRC)
10/17/11 Meeting Summary

Prepared by Tracy Hemmeter

1. **Participants**: Alan Kurotori (Santa Clara Valley Water District), Brian Schmidt (Santa Clara Valley Water District), Chris DeGroot (City of Santa Clara), David Stubchaer (City of Gilroy), George Belhumeur (San Jose Water Company), Hossein Ashktorab (Santa Clara Valley Water District), Karen Sundback (League of Women Voters), Ken Kelly (United Neighborhoods of Silicon Valley), Nico Procos (City of Palo Alto), Shani Kleinhaus (Santa Clara Valley Audubon Society), Sue Graham (League of Women Voters), Tony Eulo (City of Morgan Hill), Teresa Alvarado (Santa Clara Valley Water District), and Tracy Hemmeter (Santa Clara Valley Water District)

2. Review of Action Items from Last Meeting

Tracy reported out on actions items from the July meeting.

a. Follow-up with water conservation staff regarding estimates for how much investment would be needed to get noticeable water conservation savings above what is already planned

Additional savings are possible if the District increases its investment in water conservation, i.e., provides greater rebates and incentives. However, the District's water conservation target is already set very high and increased investment would begin to lose cost-effectiveness.

b. Follow-up with Contra Costa Water District regarding estimates for participating in the Los Vaqueros Expansion project

Contra Costa Water District staff are working on developing potential costs for the current expansion project and should have something to share with SCVWD by the end of the year.

c. Develop a portfolio that would not require calls for short-term demand reductions

Short-term demand reductions can be avoided by adding dry-year imported water options such as spot-market transfers and long-term option agreements or by combining multiple large, local investments such as multiple reservoir expansions.

d. Develop additional information on the costs of shortages

The District has information on the costs of shortages to the commercial and industrial sectors. However, based on input from water retailers, most calls for short-term water use reductions would be borne by the residential sector. The District has requested information from a consultant on the costs for doing the economic analysis of water shortages on the residential sector.

e. Update the planning calendar with Board meetings

Completed.

f. Send out a copy of the next Water Master Plan Board agenda package

The update to the District Board on the Water Master Plan was delayed and is currently scheduled for 11/8/11. Tracy will send out the package when it is available.

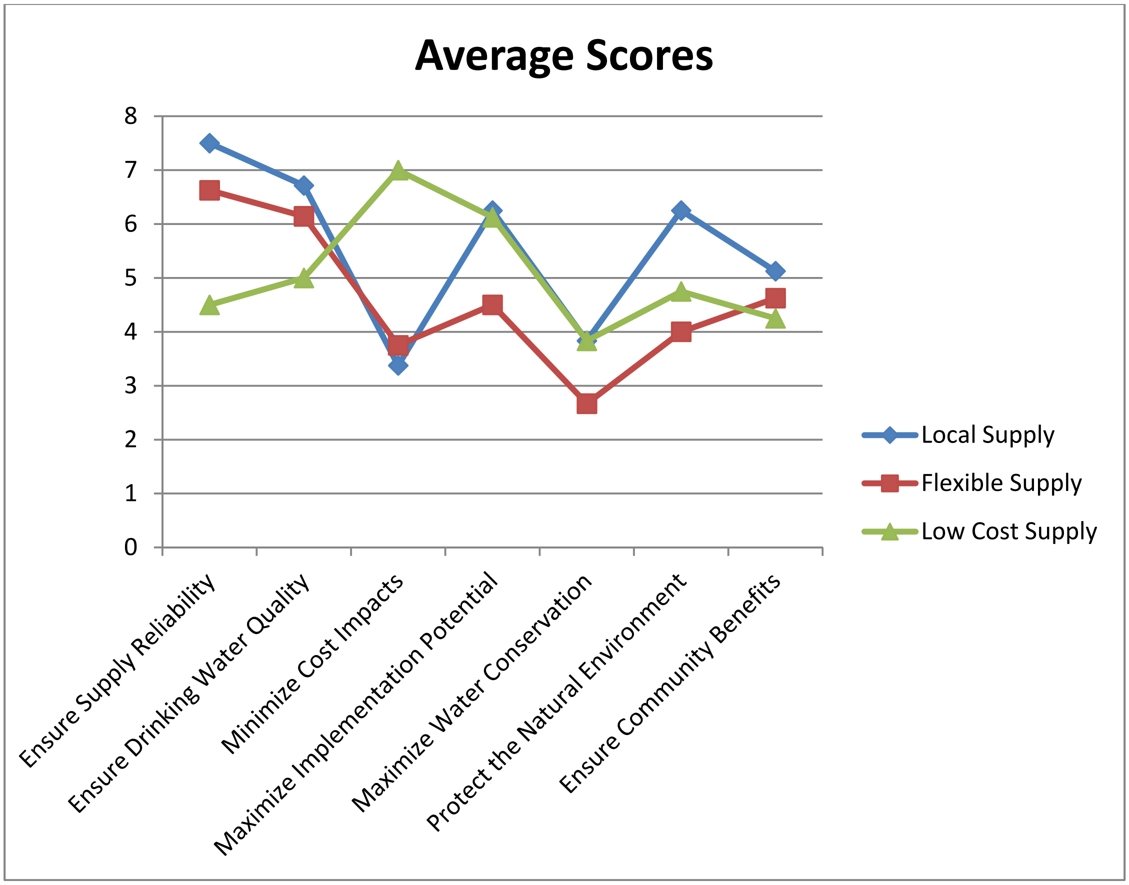
3. Water Supply and Infrastructure Master Plan

Tracy briefly reviewed the memo and table on water supply strategies that was sent to the committee on October 10, 2011 (attached). The group then discussed the different strategies and related issues. Some of the individual comments were:

- In the table, the last bullet of benefits for “Local Supply Development” should specify wastewater flows to southern San Francisco Bay.
- In the table, the last bullet of risks/challenges for “Maximize System Flexibility” should specify transportation infrastructure.
- There was discussion about the difference between long-term water conservation savings and short-term water use reductions during droughts. There was unanimous support for long-term water conservation efforts, such as the ongoing rebate and incentive programs and landscape ordinances.
- The majority of participants did not support using mandatory short-term water use restrictions to manage drought conditions. Some of the reasons cited were hardships on customers, people wanting a choice in how they use their water and not wanting mandatory restrictions, and the revenue shortages for water suppliers during water use reductions. There was a request that District staff incorporate lost revenue into the economic analysis of water shortages.
- To augment supplies in a meaningful way, we shouldn’t be relying on new Delta supplies before a long-term Delta solution has been implemented.
- Don’t limit indirect potable reuse options to using existing recharge facilities and explore options for the Palo Alto and Sunnyvale wastewater treatment plants.
- There aren’t specific South County projects.
- Need to do a sensitivity evaluation on the planning objective weights.

- Some people in the community lack a clear understanding of recycled water quality and its uses.
- Some people are concerned about the quality of water from reservoirs
- Some people are concerned about the quality of advanced treated recycled water.
- Reservoirs should be used for treatment (i.e., wetlands) and reservoir projects need to include environmental enhancement rather than just mitigation.

Next, the individual participants rated/scored the strategies against the different planning objectives. District staff compiled the results of the rating/scoring following the meeting by averaging individual scores for the different strategies. High scores were equated to an 8, medium scores were equated to a 5, and low scores were equated to a 2. Staff also reviewed how individuals ranked the strategies relative to each other. "Local Supply Development" or developing indirect potable reuse had the highest average score and 7 of 9 respondents rating it highest. "Maximize System Flexibility" with reservoir expansions and pipelines had the lowest average score, but the result may have been influence by one person's very low score. "Minimize costs" by developing dry year water options was rated lowest by 6 of 9 respondents. The relative scoring was not affected by applying the planning objective weights.



4. Planning Calendar

The group reviewed the planning calendar. It was agreed that meeting on Monday afternoons would be okay. Further, it was agreed to move the next meeting to December 12 or December 19. The purpose of that meeting will be to develop a preferred water supply strategy. The updated calendar is attached.

5. Action Items

- Include information on how businesses and Cities are planning for water at the next meeting. Specific reference was made to the Water Supply Assessment for the 49’ers stadium project in Santa Clara.

6. Next Meeting

Please hold December 19, 2011 at 1:00 pm for our next meeting.

Santa Clara Valley Water District

MEMORANDUM

FC 14 (01-02-07)

TO: Water Resources Planning Stakeholder Review Committee

FROM: Tracy Hemmeter

SUBJECT: Water Supply Strategies for the Water Supply and Infrastructure Master Plan

DATE: 10/5/11

Santa Clara Valley Water District (District) staff is planning to update the District Board of Directors on the development on the Water Supply and Infrastructure Master Plan (Water Master Plan) at the Board's November 8, 2011 meeting. The update will include information on three alternative water supply strategies for meeting future water needs. Staff will be requesting input on water supply strategies from the Water Resources Planning Stakeholder Review Committee (Committee) at the Committee's October 17, 2011 meeting. The input from the Committee will be included in the update to the District Board of Directors.

Water Supply Strategies

The District has provided the Committee with information on different projects and programs that are being considered for the Water Master Plan. In addition, staff has provided the Committee with information on the costs and water supply benefits of different combinations (or portfolios) of projects and programs. Eight initial portfolios were initially developed that focused on maximizing benefits for individual planning objectives and sub-objectives. The portfolios were evaluated for how they would perform during an extended drought. The District's Water Shortage Contingency Plan, as documented in the Board-adopted 2010 Urban Water management Plan, is designed to avoid having to call for more than a 20 percent reduction in water use in any given year of an extended drought. This reduction in water use is a short-term reduction and is in additional to long-term water conservation savings. Staff then rated all eight portfolios for how well they achieved all the planning objectives.

Based on the initial evaluation, staff revised the projects included in the different portfolios to maximize benefits and minimize short-term water use reductions. Staff has evaluated approximately 50 combinations of projects. The portfolios that perform the best can be summarized as three strategies for meeting future water supplies needs. The three strategies, which are summarized in the attached table, are Local Supply Development, Maximizing System Flexibility, and Minimize Costs. Each of the strategies would include gray water use, which is a conservation project, and a recycled water regional connector project. These projects are relatively low cost and reduce or off-set potable water demands. Thus, they are considered "no regrets" projects. In addition, each of the strategies could be supplemented with additional projects to reduce or eliminate the need for short-term water use reductions during droughts.

Rating Approach

Staff worked with the Committee to develop planning objectives and sub-objectives for evaluating projects and water supply strategies. At the October 17, 2011 Committee meeting, staff will be asking the Committee to rate each of the water supply strategies for how well they meet each of the planning objectives, from low to high. The planning objectives and sub-objectives are:

- Ensure water supply reliability
    - Minimize water supply shortages or calls for short-term water use reductions
    - Develop local supplies
    - Maximize water supply system flexibility
- Ensure drinking water quality
    - Protect groundwater quality
    - Meet treated water standards
- Minimize costs
- Maximize implementation potential
    - Maximize District influence over supplies and operations
    - Minimize barriers to implementation
- Maximize water conservation
- Protect the natural environment
    - Provide benefits to watershed, streams, and natural resources
    - Reduce greenhouse gas emissions
- Provide community benefits
    - Provide flood and recreation benefits
    - Ensure equitable distribution of benefits

The attached Water Supply Strategy Ratings sheet can be used to provide your input before or during the October 17, 2011 meeting. If you are unable to attend the meeting, I would greatly appreciate your input prior to the meeting.

Tracy

Senior Project Manager
Water Utility Planning

Attachments:

Water Supply Strategies Summary Table
Water Supply Strategy Ratings Sheet

Water Supply Strategy	Projects Included	Planning Level Estimated Present Value Cost	Benefits	Risks/Challenges
Local Supply Development	• Indirect Potable Reuse (groundwater recharge with advanced treated recycled water) in the Los Gatos Recharge System • Indirect Potable Reuse in the Coyote Pond Recharge System • Pipeline connecting Lexington Reservoir to the Raw Water System or Exchange Agreement with San Jose Water Company, to make use of reservoir water that would have otherwise been used for groundwater recharge	$600 Million	• Develops about 25,000 acre-feet of local, all-weather supply • Improves groundwater quality by using higher quality water for recharge • Maximizes District influence over supplies and operations since the water would be available for use regardless of weather or originates inside the County • Helps maintain water supplies in reservoirs that can be used to meet fishery requirements for cold water flows • Reduces fresh water flows to San Francisco Bay	• Public acceptance is critical to successful implementation
Maximize System Flexibility	• Reservoir Expansion/Retrofit (could be Uvas Expansion, Anderson Expansion, Calero Expansion, or Calero Expansion plus Almaden and Guadalupe Retrofits) • Pipelines Connecting Reservoirs (Uvas or Stevens Creek) to Raw Water System	$400 Million to $600 Million	• Develops an average of between 4,000 and 16,000 acre-feet of local water. • Mitigates risks by increasing storage that can be used to collect to wet-weather flows and store them for use during short- and long-term water shortages • Potential increases in recreation benefits	• Requires supplemental supplies, from either regional desalination or additional imported water agreements, to meet the short-term water use reduction target in the District's Water Shortage Contingency Plan • Public acceptance and permitting • Environmental impacts, including habitat and transportation
Minimize Costs	• Additional imported water agreements, such as dry year transfer option agreements	$100 Million	• Develops 30,000 acre-feet of supplies for when they are most needed, during droughts	• Costs are uncertain and do not include costs associated with implementing the Bay Delta Conservation Plan • Costs could increase as water supplies become even more scarce • Requires finding willing partners • Outages in the Delta could disrupt supplies

Water Resources Planning Stakeholder Review Committee
12/19/11 Meeting Summary

Prepared by Tracy Hemmeter

1. **Participants**: Chris DeGroot (City of Santa Clara), George Belhumeur (San Jose Water Company), Hossein Ashktorab (Santa Clara Valley Water District), Howard Salamanca (City of Milpitas), Jennifer Williams (Santa Clara County Farm Bureau), Jimmy Forbis (city of Morgan Hill), Ken Kelly (United Neighborhoods of Santa Clara County), and Tracy Hemmeter (Santa Clara Valley Water District)

2. Review of Action Item from Last Meeting

Tracy provided a summary of the City of Santa Clara's Water Supply Assessment (WSA) for the 49ers Stadium Project that was included in the agenda package. Cities are required to prepare WSAs for proposed development projects that meet certain criteria to demonstrate that there is sufficient water supply now and in the future. WSAs are typically based on the water supplier's Urban Water Management Plan. In the case of the 49ers Stadium, the development will result in an increase in water use of about 157 acre-feet per year (AFY). The increase falls within the City's total projected water demand increases in their Urban Water Management Plan. Recycled water will used to meet about 132 AFY of the 157 AFY water demand for the project.

Chris reported that he has additional examples of WSAs that he will provide to Tracy for distribution.

3. Water Supply and Infrastructure Master Plan

a. Debrief from 12/13/11 District Board Meeting

Tracy summarized the Board members comments on the Update on the Water Supply and Infrastructure Master Plan agenda item. Two Board members expressed an interest in exploring alternative financing options, including working with cities on developer fees to cover costs for new water supply projects to meet the needs of development. One Board member expressed an interest in seeing a greater emphasis on commercial sector water conservation, i.e., more water conservation incorporated into green buildings, and that we should be pushing retailer partners more on conservation programs. Two Board members would like to see more non-potable recycled water, since it offsets the need for potable water supplies and has a lower impact than projects like desalination. Lastly, one Board member commented that there could be impacts on fisheries associated with the Uvas Pipeline project, even if we were to only move water when the reservoir is spilling.

One committee member asked about the concerns with desalination. Tracy explained that the concerns include high cost and potential environmental impacts, though it is a potential dry year water supply that does not necessarily have to rely on the Delta. The committee member commented that desalination may not a good option today, but may be a more attractive option in the future.

Another committee member asked whether Board said anything with regard to imported water options. Tracy reported that they had not said anything during the update. That may be because both the strengths (relatively low cost and provides water when we need it most during droughts) and weaknesses (subject to outages; concerns about continued decreases in reliability) of imported water options were presented by staff.

b. Review Water Supply Projects and Strategies

Tracy noted the agenda package included summaries of the water supply strategies and projects that are currently being considered for the Water Supply and Infrastructure Master Plan (Water Master Plan). The group discussed various aspects of the projects and strategies/portfolios.

- In response to a committee member question regarding District staff's recommendation regarding additional imported water supplies, Tracy reported that she sees a role for them both the Local Supply Development (indirect potable reuse (IPR)) and the Maximize System Flexibility (reservoir expansion and pipelines) strategies. With Local Supply Development, we may need imported supplies to fill in gaps between when we start to see shortfalls and getting an IPR program fully on-line. With Maximize System Flexibility, we do not have enough expanded storage opportunities to carry us completely through an extended drought and will need supplemental supplies.
- A committee member noted that we need to move forward with IPR based on the technical feasibility, the challenges of reservoir expansion make it impractical, and the strategy that relies on the Delta is not reliable.
- Tracy explained that we need dry year options if we are going to plan to avoid calls for mandatory water use reductions (calls for more than a 10% water use reduction) in a drought, even with IPR. Even IPR combined with reservoir expansion is not enough to avoid calls for mandatory water use reduction in a drought. Tracy said she heard from the committee that there is a preference to avoid calling for more than voluntary conservation.
- A committee member noted that efforts to restore imported water supply reliability such as the Bay Delta Conservation Plan are expensive and will make indirect potable look cheap in comparison.
- A committee member said we need to carry IPR forward into the Water Master Plan preferred strategy.
- Two committee members said we should be working on getting agreements for interim water supplies now since it will take time to get IPR online.

- A committee member noted that there are still some things we can do relatively quickly, such as gray water and rainwater harvesting, if we set our minds to it.
- A committee member asked why it would take so long to get IPR online. Tracy explained that we anticipate the need to demonstrate the treatment technology at the advanced water treatment facility that is being constructed now, then we would demonstrate groundwater recharge with the smaller Coyote IPR project, and then we would move on to the Los Gatos IPR. Also, we need to build public support before we make the larger investment in the Los Gatos IPR project. District staff also explained the importance of public perception regarding any IPR project.
- Everyone agreed with the need to implement the recycled water outreach strategy.
- A committee member asked if we would be able to "re-operate" the groundwater basin after IPR is implemented. Tracy said that there could be some opportunities for increasing pumping and operational storage if groundwater recharge is increased. Also, this could change the triggers in the water shortage contingency plan for when we implement different actions like calls for short-term water use reductions.

c. Develop Preferred Water Supply Portfolio

There was consensus among the participants on a preferred water supply strategy of:

- avoiding mandatory calls for short-term water use reductions (keep calls for short-term water use reductions below 10 percent),
- developing indirect potable reuse,
- constructing additional groundwater recharge facilities,
- continuing to pursue water conservation (including gray water) and non-potable recycled water opportunities, and
- developing dry year options (that preferably do not rely on the Delta or minimize risks associated with Delta supplies) to supplement supplies during droughts and/or fill in needs between getting projects online.

4. Planning Calendar

The group reviewed the planning calendar. Tracy noted that the date for the next Stakeholder Review Committee should be 2/13/12. The purpose of the meeting will be to review and discuss the preliminary implementation plan for the Water Master Plan.

5. Action Items

Tracy will forward additional information on Water Supply Assessments upon receipt.

6. Next Meeting

Please hold February 13, 2012, at 1:00 pm for our next meeting.

Exhibit A

CITY OF SANTA CLARA
WATER AND SEWER UTILITIES

49ERS STADIUM, LLC

DEVELOPMENT APPLICATION

WATER SUPPLY ASSESSMENT FOR COMPLIANCE WITH CALIFORNIA WATER CODE SECTION 10910

Approved by City Council Approval 02/24/09
Resolution # 09-7596

1500 WARBURTON AVE
SANTA CLARA, CA 95050

49ERS STADIUM, LLC
DEVELOPMENT APPLICATION
WATER SUPPLY ASSESSMENT FOR COMPLIANCE WITH CALIFORNIA WATER CODE SECTION 10910

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49ERS STADIUM, LLC DEVELOPMENT APPLICATION

WATER SUPPLY ASSESSMENT FOR COMPLIANCE WITH CALIFORNIA WATER CODE SECTION 10910

INTRODUCTION

On September 26, 2008 49ers Stadium, LLC ("Applicant") submitted an application to develop a sports stadium complex located on 22 acres at the southwest corner of the intersection of Tasman Drive and Centennial Boulevard in the City of Santa Clara ("Project"). The Applicant subsequently submitted a request for this Water Supply Assessment ("WSA" or "Assessment") in accordance with the California Water Code and California's Environmental Quality Act. On January 23, 2009 the City of Santa Clara received modified project information from the 49ers Stadium, LLC which impacted water demand, therefore the additional Project information was incorporated into this WSA.

The City of Santa Clara's City Council approved and adopted an Urban Water Management Plan in 2005 ("UWMP" or "2005 UWMP"). The California Department of Water Resources ("DWR") also approved the UWMP. The 2005 UWMP did not specifically include or address this Project since it was not proposed at the time the UWMP was prepared. However, the UWMP did include projected increases in water demand due to densification and intensification of both residential and non-residential land uses.

This Assessment relies on the data contained in and used to develop the UWMP. Unless noted, all figures in this Assessment are in acre-feet and are for total water demand or supply, i.e. both potable and recycled water.

The findings of this Assessment will be submitted to the City Council for approval and included in the environmental review process. The City's approval, denial, conditional approval or any act on this Assessment does not guarantee that the Project will be approved and does not obligate the City to approve, deny, conditionally approve, take any act on, or make any decision on the Project application.

WATER SUPPLY

The City of Santa Clara has four sources of water. These sources include two treated water sources, groundwater, and recycled water. Contracts for the two treated water sources, the Santa Clara Valley Water District ("SCVWD" or "District") and the San Francisco Public Utilities Commission ("SFPUC"), are contained in Appendices A and B respectively. The City purchases recycled water from South Bay Water Recycling ("SBWR"). The contract for recycled water is contained in Appendix C. The City also owns and operates 28 groundwater wells located within the City's boundaries.

Recycled water use is limited by the availability of acceptable uses and proximity to the recycled water distribution system. The use of treated surface water from SCVWD and SFPUC is limited by the respective contracts.

The City has projected meeting anticipated future water demands using the City's four existing water supplies and water conservation. The City's analysis of future water demand and available supply, which will be discussed later in this Assessment, indicates that additional water supplies are not necessary to meet current projected demands. Table 1 below shows the anticipated volume of water that will be used from each source to meet the expected demands projected in the UWMP. The calculation of the future water demands will be discussed in detail later in this Assessment.

Table 1
Projections of Water Supply by Source[1]

Source	2005	2010	2015	2020	2025	2030
Groundwater	15,579	16,298	17,257	18,346	19,340	20,387
SFPUC	5,500	5,500	5,500	5,500	5,500	5,500
SCVWD	4,750	4,570	4,570	4,570	4,570	4,570
Recycled Water	2,650	3,700	4,000	4,300	4,500	4,500
Conservation	336	918	1,232	1,288	1,344	1,380
Total	28,815	30,986	32,559	34,004	35,254	36,337

PROJECTED POTABLE WATER SUPPLY

The Santa Clara potable water system is separated into four interconnected zones in order to provide optimum pressures throughout the City. The four pressure zones and the location of the Project are shown in Figure 1.

Figure 1
Pressure Zones

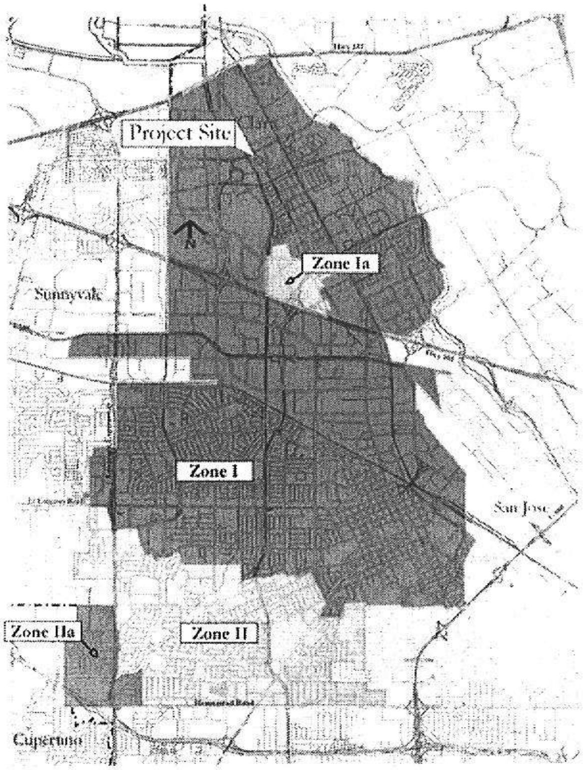

Figure 2 shows the water source by area. As shown in Figure 2, water purchased from SFPUC is used to supply water north of Highway 101. Treated surface water purchased from the SCVWD is used in conjunction with groundwater to supply water to the southern portion of the City. The Project is in an area of Zone 1 that is served by water purchased from SFPUC Hetch Hetchy and groundwater.

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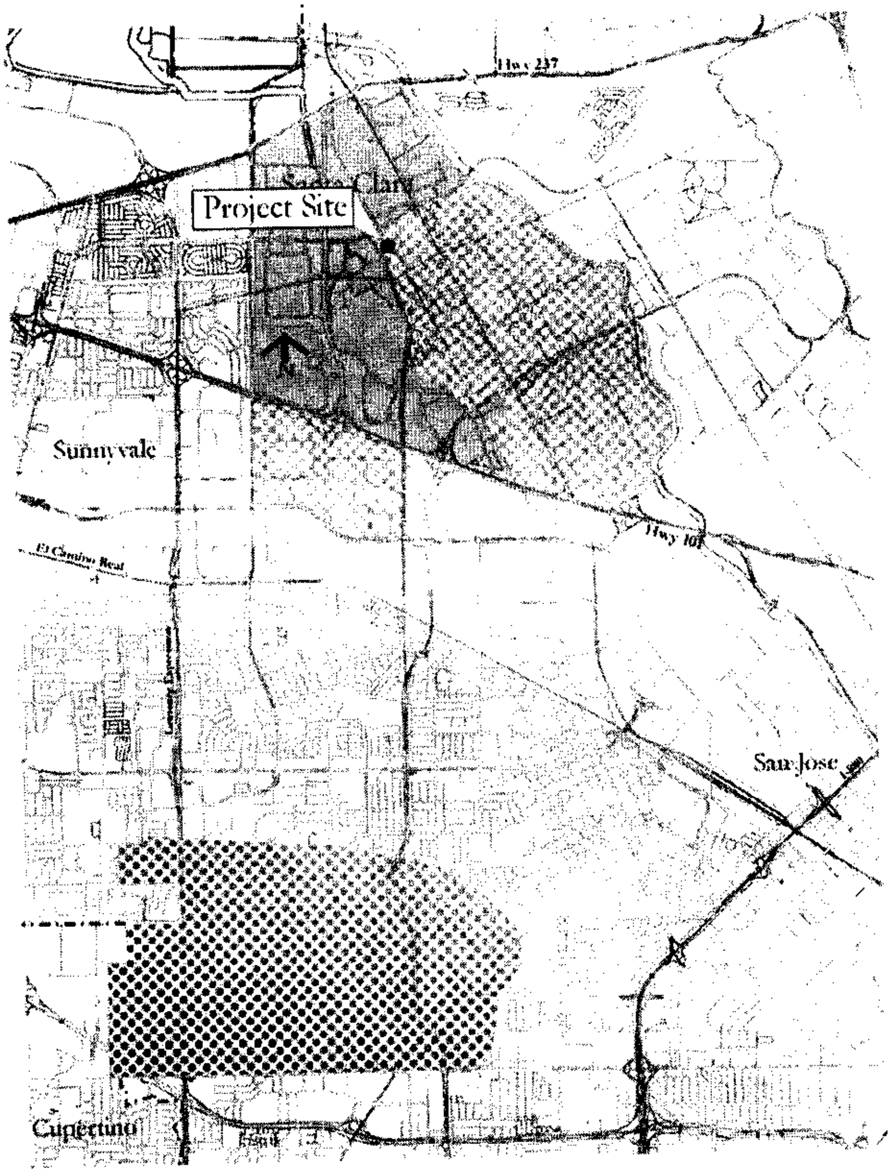
[1] City of Santa Clara Water Utility 2005 Urban Water Management Plan

Figure 2

Source of Water by Area



▨ SFPUC Hetch-Hetchy

▦ Blend of SFPUC Hetch Hetchy and Well Water

City of Santa Clara Well Water

▦ A blend of Well Water and SCVWD treated surface water

GROUNDWATER

The City of Santa Clara is supplied by groundwater from the Santa Clara Valley Groundwater Basin. The Santa Clara Valley Groundwater Basin extends from the Coyote Narrows at Metcalf Road in San Jose to Santa Clara County's northern boundary. The basin is bounded on the west and east by the Santa Cruz and Diablo Ranges, respectively. The mountain ranges converge at Coyote Narrows to form a sub basin. The sub basin is 22 miles long and 15 miles wide, at its widest point, and has a 225 mile surface area. District staff estimates that the operational storage capacity of the sub basin is 350,000 acre feet with an estimated maximum annual withdrawal of 200,000 acre feet.[2] The Santa Clara Valley groundwater basin is not adjudicated. The allowable withdrawal or safe yield of groundwater by the City of Santa Clara is dependent upon a number of factors including: withdrawals by other water agencies, quantity of water recharged and the carry over storage from the previous year. In April of each year, when the quantity of imported water available to the District by contract and the local water yield can be estimated fairly accurately, the District estimates the carryover storage. Based on the calculated carryover capacity and the anticipated customer demands, the District reviews and modifies its groundwater management strategy in order to maintain adequate water in the basin to avoid subsidence.[3]

The City's wells are strategically distributed around the City. The exact location of the wells is not included in this document for security reasons. This distribution of wells adds to the reliability of the water system and minimizes the possibility of localized subsidence due to localized over-drafting. The 2005 UWMP contained a detailed analysis of the historic pumping rates and the depth to water at each well. Minor seasonal fluctuations in the depth to water were noted in the analysis but there is no evidence of declining water table or over-drafting.

The City has well capacity that is not currently being used.[4] The water utility analyzes the capacity of the wells by dividing the actual groundwater production by the theoretical groundwater production if all wells were run at their rated capacity. This calculation yields a "utilization factor" which approximates the percentage of time the wells are run or the percentage of the total groundwater production capacity that is utilized. The utilization factor for the City's wells is currently 25% with several wells being used at less than 10% of their rated capacity. The District has not determined a resource limit to the City's use of groundwater; rather it has represented its ability to obtain sufficient quantities of water supply for the overall water requirements as stated in the City's 2005 UWMP.

The City of Santa Clara has historically pumped between 20,533 acre ft. and 14,513 acre ft. per year from the groundwater basin in the past 10 years. The historic high for groundwater utilization occurred in 1997. The amount of groundwater pump over the period from 1997 to 2007 is shown in Figure 3 below.

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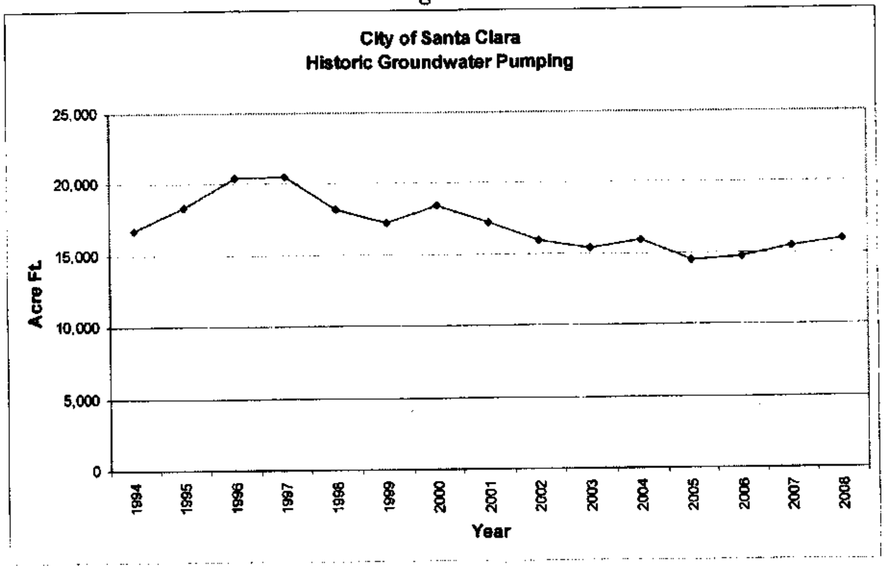
[2] City of Santa Clara Urban Water Management Plan, p 11

[3] Santa Clara Valley Water District, Draft Urban Water Management Plan, August 2005

[4] City of Santa Clara 2005 Urban Water Management Plan, Appendix H

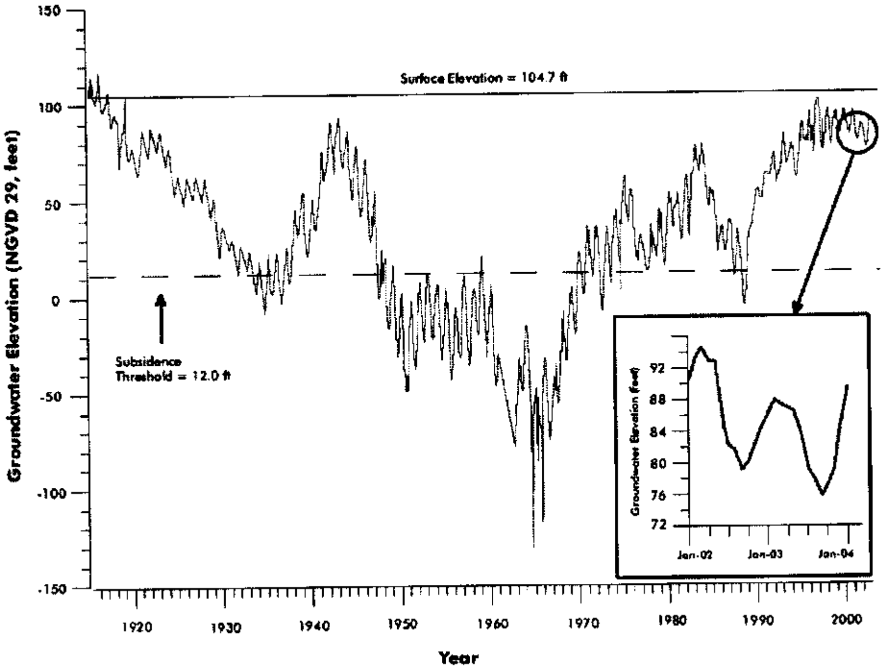
Figure 3



The most recent information from DWR indicates that neither the Santa Clara Valley Basin, nor the Santa Clara Sub Basin, is currently listed as overdrafted.[5] In addition, information from the SCVWD indicates that groundwater levels in the basin are rising as indicated in Figure 4 below.

Figure 4

Hydrograph for Santa Clara Valley Sub Basin Index Well (07S01E07R013)[6]



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[5] Department of Water Resources, California's Groundwater Update 2003, DWR Bulletin 118 www.groundwater.water.ca.gov/bulletin118/update2003/

[6] Santa Clara Valley Water District, Groundwater Conditions 2002/2003, January 2005

PROJECTED RECYCLED WATER SUPPLY

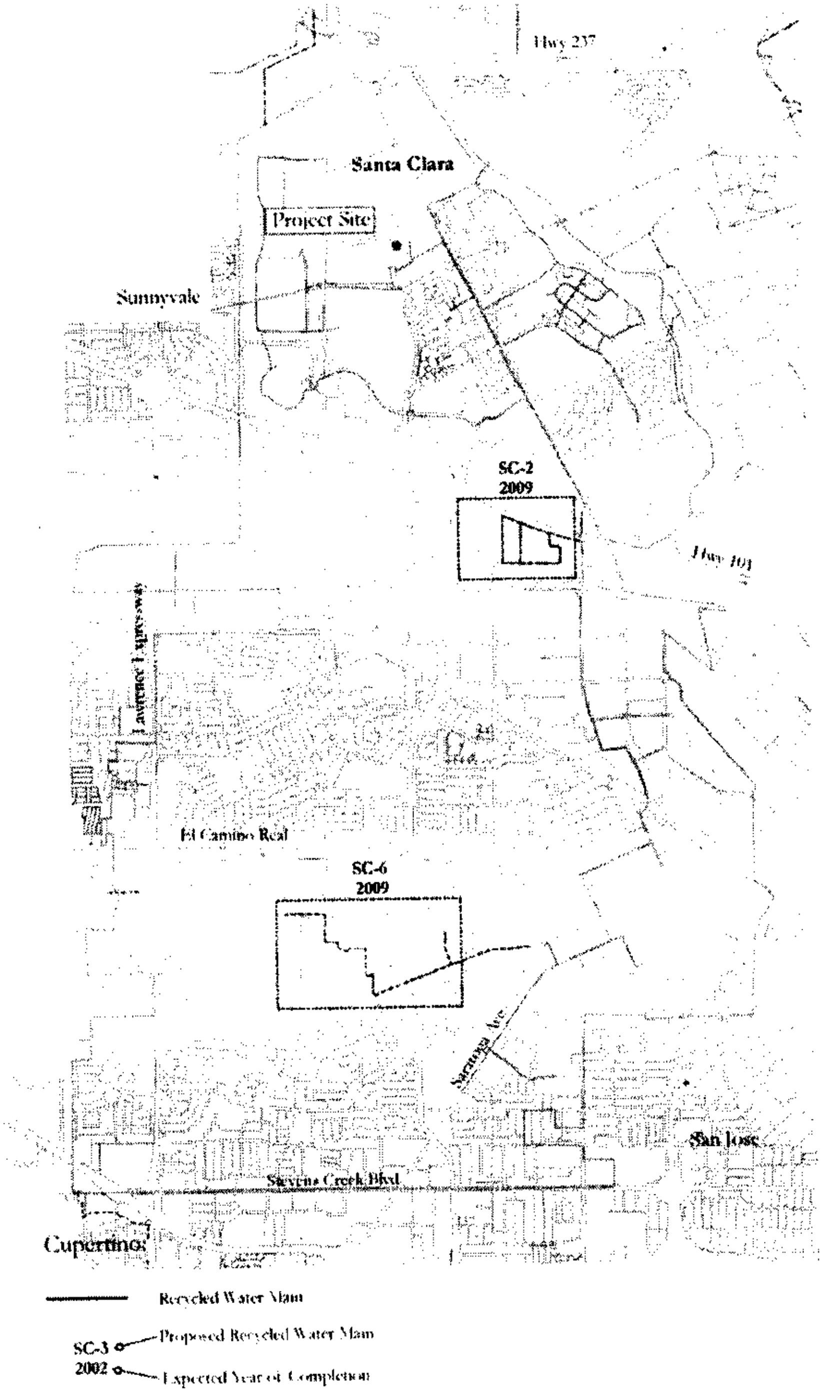
Recycled water is currently available at the proposed site. Recycled water mains are located adjacent to the Project. Therefore, recycled water is expected to be used to meet a portion of the total water demand for the Project. Specific estimates were made regarding the potential use of recycled water for turf irrigation, landscape irrigation, cooling tower make up water, and toilet flushing. The estimates of potential recycled water use are explained further in the Water Demand section of this Assessment.

The recycled water available in the City is provided by South Bay Water Recycling (SBWR) and meets current regulations of the California Department of Public Health for unrestricted use. This designation allows for the use of recycled water for irrigation and industrial use within specific guidelines. As noted in the 2005 UWMP there is ample capacity within the recycled water system. The San Jose/Santa Clara Water Pollution Control Plant currently produces in excess of 100 million gallons per day of water that meets recycled water standards, however system-wide recycled water sales are approximately 10 million gallons per day. The recycled water distribution system is shown in Figure 5 below.

The recycled water system has operated since 1989 with minimal interruptions in service. SBWR strives to reduce the number of instances, duration, and magnitude of any service interruptions. The use of recycled water at any site is contingent upon the completion of the necessary arrangements in accordance with SBWR, City of Santa Clara and California Department of Public Health rules and regulations regarding the use of recycled water. In addition, payment must be made of applicable fees, rates and charges. These fees rates and charges may include but are not limited to charges for major facilities described above and delivery charges for the recycled water used.

Figure 5

Recycled Water Distribution System



WATER DEMANDS

The 2005 UWMP projected increases in water demand using an "End Use" model. Two main steps are involved in developing an End Use model: (1) establishing base year water demand at the end-use level (such as toilets, showers) and calibrating the model to initial conditions and (2) forecasting future water demand based on future demands of existing water service accounts and future growth in the number of water service accounts. The calculations assumed that the density of residential housing would increase over the study period and that redevelopment and changes would result in water demand increases in other sectors.

After establishing the base year, the water demand at the end-use is calculated by breaking down total historical water use for each type of water service account (single family, multifamily, commercial, irrigation, etc.) to specific end uses (such as toilets, faucets, showers, industrial processes and irrigation).[7]

The basic methodology of the model is to break down water usage into an average consumption per account type. Projections are made regarding potential reductions in average consumption based on water conservation programs, and natural replacement of less water efficient processes with more efficient processes. These projections were used to adjust the future average consumption per account figures. Projections of the future number of accounts for each user type of the future number of accounts are also calculated, typically based on other technical studies such as Association of Bay Area Governments ("ABAG") Projections or Census data. The projected number of accounts is based on the projected number of housing units for residential or the projected number of jobs in the case of the industrial and commercial categories. Job projections were taken from the ABAG publication, Silicon Valley Projections. Once both the number of accounts and the average consumption per account are calculated, the number of accounts for each future year was multiplied by the average consumption per account for that year to arrive at a total water demand for each user type. The 2005 UWMP projected increases for each user category in five-year increments. The projected increases for each category are contained in Table 2 below.

Table 2

Projected changes in water demand from the 2005 UWMP

Year	SFD	MFD	Commercial	Industrial	Institutional	Municipal	System Loss	Total
2005 - 2009	674	263	615	375	43	169	33	2,172
2010 - 2014	460	211	431	290	96	46	39	1,573
2015 - 2019	477	260	348	205	56	65	34	1,445
2020 - 2024	438	166	276	224	62	52	32	1,250
2025 - 2030	447	166	177	186	42	32	32	1,082

PROJECTED WATER DEMAND FOR THE PROPOSED PROJECT

The water demand for this Project is calculated to be 157.4 acre ft/yr. This represents an increase in water demand of 157.4 acre ft/yr for the water utility since the site of the proposed Project did not historically have any water usage.

The water demand for this project was calculated based on several sources of data. Multiple years of water demand from other National Football League (NFL) stadiums were analyzed. This data is contained in Appendix D of this Assessment. In addition, specific information regarding the proposed operation of the Project was used to calculate water demands for a variety of operations.

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[7] For purposes of this Assessment, office space is a subset of a commercial end-use.

The Project, as proposed, will include:

1) 68,500 permanent seats with the capability to expand the seating to 75,000 seats for special events.
2) 107,078 square feet of turf (football field)
3) 36,322 square feet of landscaping
4) 21,695 square feet of office space
5) 14,771 square feet of retail space
6) Cooling towers

Due to the unique nature of this project, the data described above was used to develop two calculations of the water demand using two different approaches. The approaches are described in detail in Appendix D. The two methods used each arrived at a similar result for the overall water demand for the Project. The overall estimated water demand for the project ranged from 125.9 acre-feet/year to 157.4 acre-feet/year. The highest value was selected for use in this Assessment in order to use the most conservative approach.

ESTIMATED WATER DEMAND FOR GAME DAYS

The data from other NFL stadiums demonstrated a large range and variation in water demand. In addition, differences in stadium size and type of turf had an obvious effect on the water demand noted. Therefore, data from the existing Monster Park™ Stadium was used to determine the water consumption for this project. The Monster Park™ data included water demand for both non-game days and days on which football games occurred. Additionally, Monster Park™ Stadium is a comparable stadium for this project. It was assumed that both Monster Park™ Stadium and the proposed stadium should have similar game attendance and climate. The current estimate is that the stadium may be used for as many as 22 days for NFL events. Historic water demands from game days at Monster Park™ Stadium were used to determine a range of water demands per attendee, or per capita water demand. The calculation of the per capita water demand is shown in Appendix D. The water demand for the proposed project was then calculated assuming that attendance would be equal to the permanent seating capacity of the stadium. The estimated water demand for game days is 22.2 acre- ft/year.

ESTIMATED WATER DEMAND FOR NON-NFL EVENTS

The proposed stadium will be used for events other than NFL football games. The current estimate is that the stadium may be used for as many as 20 days for various types of non-NFL events. The attendance at these non-NFL events will vary and will be difficult to estimate. In order to create the most conservative estimate of total water demand it was assumed that the non-NFL event attendance would be equal to the maximum permanent seat capacity of the stadium. The calculation of the non-NFL event water demand is contained in Appendix D. The estimated water demand for non-NFL events is 14.5 acre-ft/year.

ESTIMATED WATER DEMAND FOR NON-GAME DAYS

In addition to the per capita water demand for game days and non-NFL events, a baseline water demand for the proposed facility was calculated for the remaining days of the years when the stadium was not in use. The baseline water demand was calculated using the square footage of the office space, retail space, landscaping, turf, and an estimated cooling tower water consumption of 600,000 gallons per year. The detailed calculation of the baseline water demand is contained in Appendix D. The estimated baseline water demand for the Project was calculated to be 120.7 acre-ft/year.

WATER DEMAND TO BE MET BY RECYCLED WATER

The proposed project has access to recycled water and has a number of approved uses for recycled water. The proposed project can utilize recycled water for turf irrigation, landscape, cooling tower make up water as well as toilet and urinal flushing. The applicant has indicated willingness to use recycled water for all of these uses. The use of recycled water will significantly reduce the demand this project will place on the potable system. The calculation of water demand that can be met using recycled water is shown in Appendix D. Recycled water can be used to meet 131.8 acre-ft/yr of the total 157.4 acre-ft/year necessary for this project. Therefore only 25.6 acre-ft/yr of water demand for this project will be met using potable water.

SUMMARY OF ESTIMATED WATER DEMANDS

The complete analysis of the estimated water demands is contained in Appendix D of this Assessment. The summary of the water demands described above is contained in Table 3 below.

Table 3

Calculation of water demand for 49ers Stadium, LLC

	Number of days	Gal/yr	hcf/yr	af/yr
NFL Game Days	22	7,248,447	9,690	22.2
Non NFL Events	20	4,709,541	6,296	14.5
Baseline water demand	323	39,331,716	52,583	120.7
Total	365	51,289,704	68,569	157.4

The Project site was a parking lot and therefore the site does not have a historic water demand that was taken into account in the 2005 UWMP. Assessment will address the City's ability to meet the water demand as a new demand on the water system. The water demand for this Project is calculated to be 157.4 acre-ft/year.

PROJECTED WATER DEMAND FOR OTHER PROPOSED PROJECTS

The projected water demand for other development projects that were not specifically considered in the development of the 2005 UWMP was also analyzed in conjunction with this Assessment. The complete listing of projects and their associated water demands are contained in Appendix E. Several of the projects listed in Appendix E currently have recycled water available and a portion of the demand for these projects will be met using recycled water. Table 4 shows a summary of the projected water demand changes by user category. If the timeframe for a project to be built spans several years, the earliest possible date was used to calculate the changes in Tables 4 and 5. Tables 4 and 5 do not show any projected increases in water demand from 2020 to 2030 because there are no currently identified developments due to be built during that time. The use categories of single-family dwelling ("SFD"), multi-family dwelling ("MFD"), commercial, industrial, institutional, and municipal match the use categories used in the development of the 2005 UWMP. The values in Table 4 below summarize the projected changes in water demand for each user category and the planning period in which the change is expected to occur. If a proposed project resulted in a change of use, such as a commercial building being converted to single-family residential housing, the existing water demand was subtracted from the corresponding category and the new water demand was added to the category for the new use. Therefore, in the example cited earlier, the historic water demand for the commercial building would be subtracted from the commercial category and the new demand for the proposed single-family dwellings would be added to the SFD column. The table below does not include the water demand for the proposed Project.

Table 4

Changes in water demand for proposed projects excluding 49ers Stadium, LLC

Year	SFD	MFD	Commercial	Industrial	Institutional	Municipal	Total
2005 - 2009	49.3	89.4	1,142.7	59.2	2.3	0.0	1,342.9
2010 - 2014	107.0	225.5	509.3	51.1	4.0	0.0	896.9
2015 - 2019	0.0	109.5	18.8	157.9	254.0	0.0	540.2
2020 - 2024	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2025 - 2030	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Table 6 below contains the calculated changes in water demand from all the proposed projects listed in Appendix E, including the projected water demand from the Project. The analysis performed was identical to the analysis for Table 5 above.

Table 5

Changes in water demand for proposed projects including 49ers Stadium, LLC

Year	SFD	MFD	Commercial	Industrial	Institutional	Municipal	Total
2005 - 2009	49.3	89.4	1,142.7	59.2	2.3	0.0	1,342.9
2010 - 2014	107.0	225.5	666.7	51.1	4.0	0.0	1,054.3
2015 - 2019	0.0	109.5	18.8	157.9	254.0	0.0	540.2
2020 - 2024	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2025 - 2030	0.0	0.0	0.0	0.0	0.0	0.0	0.0

The projected changes in total water demand calculated by the End Use Model are higher than the changes noted in the table above. Water demands for some user categories are higher than was projected by the End Use Model, however, these are offset by other categories of users that have water demands that were lower than project. Overall, the water demands are less than projected by the End Use Model. Therefore, the increase in water demand from the proposed development falls within the total projected water demand increases described in the 2005 UWMP.

COMPARISON OF WATER DEMAND AND WATER SUPPLY

COMPARISON OF ACTUAL WATER SALES TO PROJECTED WATER DEMANDS

The current overall system demand is significantly lower than was projected by the 2005 UWMP. According to the modeling performed for the 2005 UWMP, the 2008 total water demand for the City was projected to be 30,118 acre ft/yr. The actual water demand for 2008 was 26,263 acre ft, or 3,855 acre ft less than projected and planned for in the UWMP. Table 7 shows the projected demands from the 2005 UWMP. Table 7 shows the actual water demand for calendar years 2005 through 2008. The 2005 UWMP concluded that adequate water supplies existed to meet the demands noted in Table 6 during a normal water year.

Table 6

2005 UWMP Demand Projections by Category

Year	SFD	MFD	Commercial	Industrial	Institutional	Municipal	System Loss	Total
2005	6,964	5,305	7,397	6,364	1,097	857	831	28,815
2010	7,638	5,568	8,012	6,739	1,140	1,026	864	30,987
2015	8,098	5,779	8,443	7,029	1,236	1,072	903	32,560
2020	8,575	6,039	8,791	7,234	1,292	1,137	937	34,005
2025	9,013	6,205	9,067	7,458	1,354	1,189	969	35,255
2030	9,460	6,371	9,244	7,644	1,396	1,221	1,001	36,337

Table 7

Actual Potable and Recycled Water Sales

Year	SFD	MFD	Commercial	Industrial	Institutional	Municipal	System Loss	Total
2005	6,346	5,013	6,963	4,972	903	1,207	996	26,400
2006	6,312	5,044	6,924	5,111	902	1,200	1,222	26,715
2007	6,535	5,288	7,310	5,022	1,025	1,396	707	27,283
2008	6,425	5,166	7,012	4,720	955	1,267	718	26,263

SINGLE DRY YEAR

During a single dry year, the City's 2005 UWMP projects no reduction in supplies from groundwater and SCVWD treated surface water. SFPUC indicated that during a single critical dry year the City could expect a maximum reduction of water supplies of 30% in water deliveries in 2030[8]. However, water supplied from SFPUC only accounts for approximately 15% of the City's total water supply. This minimizes the overall effect of this potential decrease in supply. According to the analysis in the 2005 UWMP, no reduction in water deliveries would occur in 2010, 2015, 2020 or 2025 as a result of a single dry year event. Recycled water use and water conservation were projected to remain unchanged during a critical dry year. During a single critical dry year, the projected shortfall in available water supplies was projected to be no more than 5% and that shortfall would only occur in 2030. However, as noted above, the City's current water sales are significantly lower than the water demands projected in the 2005 UWMP.

MULTIPLE DRY YEAR

During a multiple dry year event, the City projects no reduction in supplies from groundwater and SCVWD treated surface water based on analysis provided by the SCVWD[9]. SFPUC has indicated that during multiple critical dry years the City can expect a maximum reduction of SFPUC water supplies of 45%.[10] As noted previously SFPUC only accounts for approximately 15% of the City's total water supply, which minimizes the effect of the reduction in this single source of water. Recycled water use and water conservation are projected to remain unchanged during a multiple dry year event. The resulting analysis of all available supplies is shown in Table 8, which is taken directly from the City's 2005 UWMP. For SFPUC supplies, this analysis assumes a worst-case scenario based on a replication of the 1987-1992 multiple dry year event with the volume shown being the supply available in the final year of the multiple dry year event. The water supply shown as available in 2010 is based on the supply assurance in the Interim Water Shortage Allocation Plan based on a 20% system wide shortage. As shown by the table, during a multiple critical dry year event, the projected shortfall in available water supplies should be no more than 9%. It is important to note again that the City's current water demand is significantly lower than the projections used for this analysis and therefore the shortfall may not occur.

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[8] City of Santa Clara 2005 Urban Water Management Plan, p 42

[9] City of Santa Clara 2005 Urban Water Management Plan, Appendix E

[10] City of Santa Clara 2005 Urban Water Management Plan, p 43

Table 8

Projected Supply and Demand Comparison - Multiple Dry Year

	2010	**2015**	**2020**	**2025**	**2030**
Groundwater	16,298	17,257	18,346	19,340	20,387
SFWD	3,013	3,013	3,058	3,159	3,260
SCVWD	4,570	4,570	4,570	4,570	4,570
Recycled Water	3,700	4,000	4,300	4,500	4,500
Conservation	918	1,232	1,288	1,344	1,380
Supply Totals	28,499	30,072	31,562	32,913	34,097
Demand Total	30,986	32,559	34,004	35,254	36,337
Difference	2,487	2,442	2,341	2,240	2,140
Difference as a % of Supply	9%	8%	8%	7%	7%
Difference as a % of Demand	8%	8%	7%	7%	6%

CONCLUSION

The proposed development on 22 acres at the southwest corner of the intersection of Tasman Drive and Centennial Boulevard is projected to increase water demand with the City by 157.4 acre-ft/year. However, recycled water can be used to meet 131.8 acre-ft/yr of the total 157.4 acre-ft/year necessary for this project. Only 25.6 acre-ft/yr of water demand for this project will be met using potable water. The analysis of the other projects that were not considered as part of the 2005 UWMP indicates that the increase in water demand from this Project is consistent with the growth projections in the 2005 UWMP. The City's 2005 UWMP concluded that sufficient water supplies exist to meet the projected demands. Therefore, based on the analysis contained in this Assessment, the City of Santa Clara Water Utility has determined that there are sufficient water supplies to provide service to the proposed development by 49ers Stadium, LLC on 22 acres at the southwest corner of the intersection of Tasman Drive and Centennial Boulevard.

Developed projects and programs to meet future water supply needs

Project Type	Estimated Average Annual Yield (acre-feet)	Estimated Cost per Acre-Foot
Baseline	423,000	$500
1. Additional Conservation	300	$300
2. Additional Non-Potable Recycling	240 - 700	$150 - $550
3. Indirect Potable Reuse	3,000 – 20,000	$450 - $750
4. New Groundwater Recharge Ponds	2,000 – 8,000	$50 - $150
5. Additional Imported Water Agreements	0 – 30,000	$50 - $500
6. Regional Desalination	2,000	$1,000
7. Pipelines Between Reservoirs and the Raw Water System	900 – 3,000	$200
8. Reservoir Expansion (5,000 – 100,000 acre-feet)	150 – 15,000	$500

Potential Strategies for the Water Supply and Infrastructure Master Plan

Water Supply Strategy	Projects Included	Planning Level Estimated Present Value Cost	Benefits	Risks/Challenges
Local Supply Development	• Indirect Potable Reuse (groundwater recharge with advanced treated recycled water) in the Los Gatos and Coyote Pond Recharge Systems • Pipeline connecting Lexington Reservoir to the Raw Water System to make use of reservoir water that would have otherwise been used for groundwater recharge • New groundwater recharge pond in Saratoga	$600 Million to $700 Million	• Develops about 25,000 acre-feet per year (AFY) of local, all-weather supply • Improves groundwater quality by using higher quality water for recharge • Maximizes District influence over supplies and operations since the water would be available for use regardless of weather or originates inside the County • Helps maintain water supplies in reservoirs that can be used to meet fishery requirements for cold water flows • Reduces fresh water flows to saltwater habitat in southern San Francisco Bay	• Public and regulatory acceptance is critical to successful implementation
Maximize System Flexibility	• Reservoir Expansion/Retrofit (could be Uvas Expansion, Anderson Expansion, Calero Expansion, and/or seismic retrofits to Calero and Guadalupe) • Pipelines Connecting Reservoirs (Uvas or Stevens Creek) to Raw Water System • Supplemental dry year supplies	$400 Million to $600 Million	• Develops an average of between 4,000 and 16,000 AFY of local water. • Mitigates risks by increasing storage that can be used to collect to wet-weather flows and store them for use during short- and long-term water shortages • Potential increases in recreation benefits	• Requires supplemental supplies, from either regional desalination or additional imported water agreements, to meet the short-term water use reduction target in the District's Water Shortage Contingency Plan • Public acceptance and permitting • Environmental impacts, including habitat and transportation infrastructure
Minimize Costs	• Additional imported water agreements, such as dry year transfer option agreements	$100 Million	• Develops 30,000 AFY of supplies for when they are most needed, during droughts	• Costs do not include costs associated with implementing the Bay Delta Conservation Plan • Outages in the Delta could disrupt supplies

All strategies include baseline projects and programs, 300 AFY gray water reuse, and 500 AFY non-potable recycling

Project Name	Description	Estimated Yield	Planning Level Estimated Present Value Cost	Notes
Local Supply Development				
Indirect Potable Reuse (IPR) - Los Gatos Ponds	Expand existing centralized treatment facility, pump water back to Los Gatos Ponds and use for rechage; needs to be combined with Lexington Pipeline	20,000 AFY	$463,000,000	
Lexington Pipeline	Pipeline connection between Vasona Reservoir and Rinconada Force Main; includes additional pumping	NA	$9,000,000	Required component of Los Gatos IPR
Indirect Potable Reuse - Coyote Creek	Satellite treatment facility to advance treat recycled water in the Silver Creek Pipeline; put into Coyote Ponds after ponds taken off-stream	5000 AFY	$101,000,000	
North County Recharge from IWRP 2003	New recharge pond at Saratoga site	3,000 AFY on average	$13,000,000	Works with all strategies
System Flexibility				
Stevens Creek Reservoir tie-in to Stevens Creek Pipeline	Pipeline connection between the reservoir and raw water pipeline	4,000 AFY on average	$16,000,000	
Uvas Reservoir tie-in to Santa Clara Conduit	Pipeline connection Uvas Reservoir to Santa Clara Conduit upstream of the Upper Llagas Recharge Ponds	10,000 AFY on average	$46,000,000	
Uvas Reservoir Expansion	Expand Uvas Reservoir from 9,835 to approximately 15,000 AF. This project would also provide seismic retrofit of the dam if required at the same time as dam expansion.	3,000 AFY on average	$220,000,000	
Anderson Reservoir Expansion	Expand Anderson by 100,000 AF to 190,000 AF total storage	8000 AFY on average	$321,000,000	
Calero Reservoir Expansion	Expand Calero Reservoir from 10,050 to 24,000 AF	150 AFY on average	$295,000,000	
Guadalupe Watershed Dam Seismic Upgrades	Seismic retrofits of Calero and Guadalupe	1,500 AFY on average	$271,000,000	
Supplemental Supply	Any option(s) from Low Cost list	22,500 AFY in critically dry years	$43,000,000	

Low Cost				
Dry Year Option	Option agreement(s) for critically dry year water	7,500 AF in critical dry years	$14,000,000	Can be higher amounts of water; costs increase proportionately
Exchange Contract	Exchange agreement for critically dry year water	2:1 Exchange; receive 10,000 AF in critically dry years for 20,000 AF in wet years	$2,000,000	
Imported Water Contract Purchase	Purchase SWP or CVP ag contract	Assuming SWP contract, about 6,000 AFY on average	$26,000,000	
Regional Desalination	Receive SFPUC water in critically dry years	11,200 AF in critically dry years	$80,000,000	
All Strategies				
Graywater Reuse	Rebates for graywater system installations	300 AFY	$1,000,000	
North County Recycled Water - Regional Connector	Connect South Bay Water Recycling system to Sunnyvale system	500 AFY	$3,000,000	

Water Resources Planning Stakeholder Review Committee
4/16/12 Meeting Summary

1. **Participants**: Chris DeGroot (City of Santa Clara), Erin Baker (Santa Clara Valley Water District), Frank Maitski (Santa Clara Valley Water District), George Belhumeur (San Jose Water Company), Jennifer Williams (Santa Clara County Farm Bureau), Kathleen Phalen (City of Milpitas), Ken Kelly (United Neighborhoods of Santa Clara County), Mansour Nasser (City of Sunnyvale), Nico Procos (City of Palo Alto), Sue Graham (League of Women Voters), Trish Mulvey (Clean South Bay/Santa Clara Basin Watershed Management Initiative), and Tracy Hemmeter (Santa Clara Valley Water District)

2. **Water Supply and Infrastructure Master Plan**

a. Update on Water Supply Strategy Development (Attachment 1)

Tracy noted that the costs for the various strategies have been updated. The costs are now based on anticipated start dates and phasing in implementation. In addition, all the costs have been updated to a common 50-year year life-cycle. Tracy also noted that the present value costs do not include costs to secure the baseline. The estimated present value cost to secure the baseline over a 50-year period is approximately $2.3 billion. The attachment incorrectly lists the estimated cost as $2,600 million.

b. Recommended Water Supply Strategy (Attachment 2)

District staff's recommended water supply strategy builds on the "Develop Local Supplies" strategy by adding Semitropic reoperations/imported water marketing. This would involve selling off existing imported water supplies when Semitropic Water Bank is close to full and county water needs are otherwise met. This helps us optimize storage in Semitropic Water Bank and minimize the risk of not being able to use our full imported water allocation in wetter years. It also provides revenue to offset the costs of implementing other projects.

One committee member noted that "imported water marketing" can have negative connotations such as going out and buying new water solely for the purpose of making money. The District should be careful how this project is named.

Another committee member noted that the District needs to get out into the neighborhoods to talk about gray water and potable reuse and suggested working with United Neighborhoods of Santa Clara County on this effort. The

District needs a strategic plan for these communications and should work with the neighborhoods on implementation.

c. Proposed Level of Service Goal

Tracy explained that District staff is recommending that the Board consider a proposed level of service goal that calls for short-term water use reductions will not exceed 10 percent. The level of service goal would be a CEO interpretation of existing policy.

Several committee members requested that District staff stress to the District Board of Directors the difference between long-term conservation programs and short-term water use reductions in response to water shortages. Calling for short-term water use reductions too often results in “message fatigue” and makes it difficult to get people to listen when actual shortages occur.

d. Implementation Approach (Attachment 3)

The committee reviewed the attached implementation approach and had the following comments on implementation and the water supply strategy in general:

- Add monitoring San Francisco Public Utilities Commission supplies to the implementation plan
- Add potential participation in a future Los Vaqueros Reservoir expansion to the implementation plan
- The implementation plan should specify what the District will be doing to implement direct potable reuse.
- There are old policies about maintaining freshwater flows to the Bay. Those policies are out of date and need to be revisited in light of potable reuse projects and benefits of reducing freshwater flows to the Bay for habitat protection.
- The District needs to make a decision regarding whether and how it will use its 5 MGD capacity in the Silver Creek Pipeline. San Jose Water Company (SJWC) might be able to use it, as it has plans to expand non-potable reuse by at least 5,000 acre-feet. The District allocation in the Silver Creek Pipeline is included in hydraulic modeling, which shows insufficient capacity in the system for SJWC recycled water expansion projects.
- The District should keep the potential for a future expansion of Anderson Reservoir on the table.
- Surface storage is a good adaptation measure for climate change.
- District staff should provide more information to the Committee on how the District will meet is long-term conservation program savings target of 98,500 acre-feet by 2030.

- The Water Supply Strategy should include a high-level of reliability. In other words, avoiding calls for short-term water use reductions of more than 10 percent should be part of the strategy and not a separate goal or CEO interpretation. Committee members expressed concerns about demand hardening with the planned increases in conservation and recycled water, the impact on rates from reduced water use, and price elasticity (water use will already be reduced as rates increase).
- The retailers have an interest in discussing the “take or pay” provisions of the contracts.

Tracy stated that she hasn’t heard any push back on the recommended water supply strategy due to its costs. Committee members responded with comments such as the most expensive water is the water you don’t have, we are in the business of supplying water, it’s not a ‘sin’ to use water but a ‘sin’ to waste it, and it is better to answer calls about water rate increases than to having to explain way a production line needs to be shut down due to a lack of water.

The main messages from the committee were:

- The water supply strategy should provide a high level of reliability throughout the planning horizon,
- The District needs look toward direct potable reuse and should include activities in the Water Master Plan to work toward this end, and
- The District need to do more work on public messaging and working with the community on delivering those messages.

3. Planning Calendar

There is only one more meeting scheduled. The primary purpose of the meeting in July will be to provide comments on the draft Water Supply and Infrastructure Master Plan.

4. Action Items

Bring back information on how the District plans to meet its long-term conservation saving goal of 98,500 acre-feet by 2030.

5. Next Meeting

Please hold July 16, 2012 at 1:00 pm for our next meeting.

Summary of Water Supply Strategies

Water Supply Strategy	Key Projects Included[1]	Planning Level Estimated Present Value Cost[2]	Benefits	Risks/Challenges
Minimize Costs	• Imported Water Dry Year Options (up to 30,000 acre-feet delivered during water shortages)	$75 Million	• Develops 30,000 acre-feet per year (AFY) of drought supply • Avoids stranded assets	• Inconsistent with State policy to reduce reliance on the Delta • No local supply development to • Need to resolve Delta issues • Outages in the Delta could disrupt supplies
Maximize System Flexibility	• Calero Reservoir Expansion • Pipelines Connecting Uvas Reservoir and Stevens Creek Reservoir to the Raw Water System • Imported Water Dry Year Options (up to 30,000 acre-feet delivered during water shortages)	$250 Million	• Mitigates short-term and long-term risks risks by increasing storage and adding redundancy and interconnectedness to the system • Potential increases in recreation benefits	• Little new local supply during droughts • Requires supplemental dry year supplies • Public acceptance and permitting • Environmental impacts, including habitat and transportation infrastructure
Develop Local Supplies	• Indirect Potable Reuse • New Groundwater Recharge Ponds	$375 Million	• Develops about 20,000 AFY of local, all-weather supply • Improves groundwater quality by using higher quality water for recharge • Maximizes District influence over supplies and operations since the water would be available for use regardless of weather • Helps maintain water supplies in reservoirs that can be used to meet fishery requirements for cold water flows • Reduces fresh water flows to saltwater habitat in southern San Francisco Bay • Builds on existing agreements	• Public and regulatory acceptance is critical to successful implementation • Potential for stranded assets • Increases the energy intensity of the District's water supply portfolio
Staff Recommendation – Ensure Sustainability	• Indirect Potable Reuse • New Groundwater Recharge Ponds • Semitropic Reoperations	$300 Million	• Develops about 20,000 AFY of local, all-weather supply • Improves groundwater quality by using higher quality water for recharge • Maximizes District influence over supplies and operations since the water would be available for use regardless of weather • Helps maintain water supplies in reservoirs that can be used to meet fishery requirements for cold water flows • Reduces fresh water flows to saltwater habitat in southern San Francisco Bay • Builds on existing agreements • Maximizes the economic value of existing assets to offset other costs	• Public and regulatory acceptance is critical to successful implementation • Potential for stranded assets • Increases the energy intensity of the District's water supply portfolio

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[1] A gray water reuse rebate program is included in all the strategies.

[2] Based on 50-year lifecycle. Present value costs are exclusive of costs to secure the baseline water supply system of approximately $2,600 million.

Recommended Water Supply Strategy

Costs estimated present value costs over a 50 year life cycle

save20gallons.org

Secure baseline supplies and facilities

419,000 AFY

$2,300 million

Develop indirect potable reuse

20,000 AFY

$300 million

Construct additional groundwater recharge facilities

3,000 AFY

$14 million

Revise Semitropic Groundwater Bank Operations

No supply yield

Revenue of $61 million

Implement gray water reuse rebate program

300 AFY

$3 million

Total Estimated Present Value Cost = $ 2.6 billion

Implementation Approach for Recommended Strategy

Strategic Elements	Phase 1: 2012 – 2016	Phase 2: 2017 – 2021	Phase 3: 2022 – 2026	Phase 4: 2027 – 2031	Phase 5: After 2031
Secure and Monitor Baseline Supplies and Demands	• Bay Delta Conservation Plan Completion • Fisheries and Aquatic Habitat Collaborate Effort Settlement Completion • Recycled Water Master Plan Updates • Continue to evaluate climate change impacts • Urban Water Management Plan Update 2015 (Updated demand and supply projections) • Water Supply and Infrastructure Master Plan Update (Validate recommended strategy)	• Anderson Dam Seismic Retrofit • Calero and Guadalupe Dam Seismic Retrofit Project • Main and Madrone Pipelines Rehabilitation • Urban Water Management Plan Update 2020 (Updated demand and supply projections) • Water Supply and Infrastructure Master Plan Update	• Urban Water Management Plan Update 2025 (Updated demand and supply projections) • Water Supply and Infrastructure Master Plan Update	• Water conservation program savings of 98,500 acre-feet per year • Urban Water Management Plan Update 2030 (Updated demand and supply projections) • Water Supply and Infrastructure Master Plan Update	• Recycled water use of approximately 30,000 acre-feet per year • Urban Water Management Plan Update 2035 (Updated demand and supply projections) • Water Supply and Infrastructure Master Plan Update
Develop Indirect Potable Reuse (20,000 acre-feet per year)	• Continue stakeholder engagement • Monitor advanced recycled water treatment effectiveness • Monitor regulations and policies	Project-level planning	Design	Construction	Operations
Additional Groundwater Recharge Ponds (3,000 acre-feet per year)		Project-level planning	Design and Construction	Operations	Operations
Semitropic Reoperations (No increase in water supply yield)	• Obtain necessary approvals	Revised operations	Revised operations	Revised operations	Revised operations
Gray Water Reuse Rebate Program (300 acre-feet per year)	• Develop groundwater protection guidelines	Operations	Operations	Operations	To Be Determined
Dry Year Options to Meet Level of Service Goal (Up to 23,000 acre-feet per year depending on severity of shortage)		Up to 8,000 acre-feet per year (AFY) in droughts	Up to 15,000 acre-feet per year (AFY) in droughts	Up to 23,000 acre-feet per year (AFY) in droughts	Up to 15,000 acre-feet per year (AFY) in droughts

APPENDIX D

Board Agenda Packages

NOTE: Information such as costs, benefits, yields, and strategy components may have changed since the time(s) presented at Board meetings.

Santa Clara Valley Water District

FC 1025 (11/18/09)

Meeting Date: 03/23/10
Agenda Item: 12
Unclassified Manager: S. Oblonsky
Extension: 2720
Director(s): All

BOARD AGENDA MEMO

SUBJECT: Update on the Water Supply and Infrastructure Master Plan

RECOMMENDATION:

A. Receive information and provide feedback on staff's approach to preparing a Water Supply and Infrastructure Master Plan (Water Master Plan); and

B. Direct the CEO to continue developing the Water Master Plan.

SUMMARY:

To achieve the Board's Policy No. E-2 that there is a reliable, clean water supply for current and future generations, staff is preparing a Water Supply and Infrastructure Master Plan (Water Master Plan). The purpose of the Water Master Plan is to establish a multi-objective plan for guiding the strategic investment of public funds in securing a reliable supply of water for the County over the next 25-years. The Water Master Plan will 1) articulate the District's long-term water supply strategy and 2) identify and plan the water supply sources and facilities that will be needed to ensure future water supply reliability. The Water Master Plan is intended to help improve efficiency and effectiveness of water supply planning by linking existing and future planning efforts and providing a financial investment strategy for securing water supply reliability through year 2035. Staff plans to complete the Water Master Plan and associated environmental document by December 2012. The drivers for the Water Master Plan, the scope of work for the Water Master Plan project, and planned stakeholder and Board engagement processes are discussed below.

Drivers for the Water Supply and Infrastructure Master Plan

One of the primary drivers for the Water Master Plan is the need for a long-term financial strategy to ensure efficient investment of public funds. The Water Master Plan will include an implementation plan that schedules projects based on finances, risk, and water supply and infrastructure needs. The objective is to ensure that investments are 1) consistent with the water supply strategy and necessary for securing water supply reliability, 2) coordinated with other investments to avoid stranding assets or unnecessarily replacing infrastructure, and 3) balancing the need for maintaining existing infrastructure with the need for investments in future water supply reliability.

The District is required by State law to prepare an Urban Water Management Plan every five years that describes future water supply conditions. The District's 2005 UWMP identified water supply shortfalls beginning around 2020 and increasing to 31,100 acre-feet per year by 2030. Shortages may come sooner or be more severe given curtailments in imported water supply, climate change, and other uncertainties. The District is currently updating the UWMP, including the water supply shortfall analysis. The Water Master Plan will update the District's roadmap for ensuring future water supply reliability in light of uncertainties and increasing water demands.

The District is working on and tracking a number of special water supply studies and issues. These include recycled water advanced treatment, indirect potable reuse including groundwater recharge reuse, desalination feasibility, San Luis Reservoir Low Point Improvement Project, Los Vaqueros Expansion Project, Delta policy, Fisheries and Aquatic Habitat Collaborative Effort, and dam seismic stability studies. The Water Master Plan will develop the District's long-term strategy for linking current and initiating future special studies to ensure water supply reliability.

The Integrated Water Resources Planning Study 2003 (IWRP 2003), which is the District's most current long-range water supply planning study, developed a planning framework, tools, and recommendations related to water supply reliability. However, IWRP 2003 did not specify a plan for implementing its recommendations related to ensuring long-term water supply reliability. The Water Master Plan will update the IWRP information and will also include an implementation plan.

Scope of Work

The Water Master Plan scope of work includes developing planning objectives based on Board Policy No. E-2 that there is reliable, clean water supply for current and future generations; assessing the current water supply system; identifying future water supply and infrastructure needs; developing a preferred mix of water supply sources and infrastructure to meet those needs; preparing an implementation plan; and conducting the appropriate environmental analysis. Staff will consider risks and opportunities when preparing the Water Master Plan, including recycled water, climate change, energy efficiencies, and the Delta. The scope and schedule are summarized in Attachment 1.

Staff utilized consultant services to assist in developing the scope, schedule, and budget for the Water Master Plan, but the Water Master Plan itself will be developed using primarily in-house resources. The exceptions to using in-house resources are likely to be CEQA compliance (i.e., Environmental Impact Report preparation) and an outside facilitator for the Stakeholder Committee. Additional resources may also be needed to conduct specialized technical studies.

The Water Master Plan will be the strategy for achieving the Board's water supply policies. The Water Master Plan will describe current and future water supply and infrastructure needs, present a recommended portfolio of projects for addressing those needs, and a schedule and budget for implementing the recommended portfolio. The Water Master Plan will be updated at least every five years to address changes in policy and conditions. On an annual basis, staff will review the Water Master Plan and validate any projects or programs scheduled for implementation or any new projects that developed during the prior year. Further, validated Water Master Plan projects will be prioritized against with other water utility projects based on a set of investment rules.

Stakeholder and Board Engagement

Staff plans to convene a Stakeholder Committee similar to the one convened for IWRP 2003. The Stakeholder Committee will include representatives from agriculture, business, municipal government, environmental advocates, homeowners organizations, public advocacy groups, water retailers and other water and wastewater agencies. In addition to conveying information back to their respective organizations, Stakeholder Committee members will be asked to provide feedback on key Water Master Plan decisions and approaches. Staff seeks to develop a Stakeholder Committee that carries balanced representation from a wide variety of interests as a means of developing a Water Master Plan that will be broadly supported by stakeholders. The first Stakeholder Committee meeting will be in March or April. It is anticipated that subsequent meetings will be held on a quarterly basis.

Staff also plans to frequently engage the Board of Directors in Water Master Plan development. The Board's Ends Policy No. E-2 regarding water supply and the associated goals and objectives will form the basis of the Water Master Plan objectives. Staff plans to return to the Board with information on the progress of the Water Master Plan as major milestones are achieved, which will occur approximately every six months. In addition, staff will seek Board Advisory Committee input to supplement Stakeholder Committee input.

FINANCIAL IMPACT:

There are no direct costs associated with this item. Approximately $480,000 is budgeted for this planning effort in the FY 2009-2010 budget for the WUE Long-term Planning (95741001). This work includes preparing the Water Master Plan work plan and beginning Water Master Plan development, developing CEO interpretations, and conducting stakeholder engagement. Staff estimates that about another $1.4 million in labor and $650,000 in consultant services (CEQA, facilitator, specialized technical studies) will be needed to complete the Water Master Plan. Thus, the total estimated cost for the Water Master Plan will be about $2 million. Costs for completing the Water Master Plan will be considered by the Board during the annual budget processes.

Once the Water Master Plan is completed, future updates of the Water Master Plan will likely be quicker and less expensive. This is the District's first Water Master Plan since the 1970s. As such, staff anticipates spending significant time and effort incorporating infrastructure aspects into the water supply planning framework developed in IWRP 2003.

ATTACHMENTS:

1. Water Supply and Infrastructure Master Plan Scope and Schedule Summary
2. Stakeholder Engagement Plan
3. PowerPoint Presentation

Water Supply and Infrastructure Master Plan
Scope and Schedule Summary

Task No.	Task Name/Description	Planned Start Date	Planned Completion Date
1	Describe Existing Water Supply System Condition	February 2010	May 2010
2	Assess Climate Change Conditions and Impacts	February 2010	May 2010
3	Update Modeling Tools	June 2010	August 2010
4	Prepare Water Supply System Outlook • risks to water supply reliability such as delta infrastructure failure and climate change • opportunities for energy efficiency improvements • baseline infrastructure needs • estimated water supply shortfalls	August 2010	January 2011
5	Define Planning Objectives • based on Board policy and CEO interpretations	February 2010	June 2010
6	Develop and Analyze Projects and Portfolios • identify projects • combine into portfolios • assess portfolios based on planning objectives • assess portfolios through modeling • conduct risk analysis	January 2011	December 2011
7	Identify Recommended Portfolio • benefit-cost ratio	December 2011	February 2012
8	Develop Implementation Program • Schedule • Priorities • Costs	February 2012	May 2012
9	Prepare the Water Supply and Infrastructure Master Plan	May 2012	December 2012
10	Prepare the Environmental Impact Report	February 2011	December 2012
11	Conduct stakeholder outreach, including quarterly stakeholder team meetings	Throughout project	

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WATER SUPPLY AND INFRASTRUCTURE MASTER PLAN PROJECT

Draft Stakeholder Engagement Plan

Project Background

The purpose of the Water Supply and Infrastructure Master Plan (Master Plan) is to articulate the water district's long-term water supply strategy and identify the water supply sources, programs, and infrastructure that will be required to meet demands over a 25-year planning horizon. The Master Plan is a significant work effort that will include:

- Define planning objectives, based on stakeholder input, that will guide the development and analysis of future water supply portfolios;
- Performing a baseline water supply system analysis to assess the strengths, weaknesses, opportunities, and threat associated with our current system and identify future water supply needs;
- Identifying a preferred portfolio for addressing future water supply needs;
- Developing an Implementation Plan with a schedule and budget for long-term water supply investments;
- Conducting environmental analysis and documentation (CEQA compliance); and
- Stakeholder engagement

The Master Plan will improve efficiency and effectiveness by linking existing and future planning efforts and providing an investment strategy for a 25-year planning horizon. The project is scheduled to begin in February 2010 and end in December 2012.

Project-Specific Stakeholder Engagement Goal

The goal of stakeholder engagement for the project is achieve sufficient representation and engagement of various interests to enable development of a technically viable Master Plan that captures stakeholder buy-in and support. Buy-in and support will be necessary from external customers and collaborators (i.e., water users, other water agencies, environmental interests, and land use agencies), water district staff and executive leadership that will contribute to Master Plan development and implementation, and the Board of Directors that will approve the Master Plan.

Project-Specific Stakeholder Engagement Activities

Stakeholder Committee

Staff plans to convene a Stakeholder Committee in March 2010. The Stakeholder Committee will include representatives from agriculture, business, municipal government, environmental advocates, homeowners organizations, public advocacy groups, water retailers and other water and wastewater agencies. In addition to conveying information back to their respective organizations, Stakeholder Committee members will be asked to provide feedback on key Master Plan decisions and approaches. Staff seeks to develop a Stakeholder Committee that carries balanced representation from a wide variety of interests as a means of developing a Master Plan that will be broadly supported by stakeholders. It is anticipated that subsequent meetings will be held on a quarterly basis.

Board Engagement

Staff also plans to frequently engage the Board of Directors in Master Plan development. Staff will go to the Board approximately every six months, to coincide with major milestones, including:

- CEO interpretations, planning objectives, and existing water supply system conditions – May 2010
- Water supply outlook – Decemeber 2010
- Water supply and infrastructure alternatives – June 2011
- Preferred water supply and infrastructure alternatives – December 2011
- Implementation program and draft Environmental Impact Report (EIR) – May 2012
- Final Water Supply and Infrastructure Master Plan and EIR – December 2012

In addition, staff will seek Board Advisory Committee input as appropriate.

Technical Team and Executive Management Team

The technical team and executive management team will each meet once a month, or as needed. The technical team will assist the project team by performing technical review, contributing information, and developing and analyzing alternatives. The executive management team will assist the project team by provide strategic direction.

Project Liaisons

All inquiries from stakeholders should come through the designated project liaisons. All communication with individual external stakeholders and Board members will be documented in Access Valley Water.

Liaison	**Roles and Responsibilities**
Sandy Oblonsky Assistant Operating Officer soblonsky@valleywater.org Ext. 2720	• Primary point of contact for Board members and executive management
Tracy Hemmeter Senior Project Manager themmeter@valleywater.org Ext. 2647	• Primary point of contact for external stakeholders and internal staff • Secondary point of contact for Board members and executive management • Develop and implement the Stakeholder Engagement Plan
Erin Baker Senior Engineer ebaker@valleywater.org Ext. 2608	• Secondary point of contact for external stakeholders and internal staff • Correspond and resolve issues with stakeholders
Diane Moore Project Coordinator dmoore@valleywater.org Ext. 3066	• Develop and implement Event Plans in support of the stakeholder engagement plan • Assist in managing the relationship with internal staff
Marty Grimes Program Administrator mgrimes@valleywater.org Ext. 2881	• Facilitate implementation of the Stakeholder Engagement Plan by offering tactics, tool, and assistance • Manage the relationship of the Customer stakeholders throughout the project

Key Project Milestones

Task No.	Task Description	Planned Completion Date
1	Described existing water supply system condition	May 2010
2	Assess climate change conditions and impacts	May 2010
3	Update modeling tools	August 2010
4	Prepare water supply system outlook	January 2011
5	Define planning objectives	June 2010
6	Develop and analyze projects and portfolios	December 2011
7	Identify recommended portfolio	February 2012
8	Develop Implementation Program	May 2012
9	Prepare the Water Supply and Infrastructure Master Plan	December 2012
10	CEQA compliance	December 2012

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Update on Water Supply and Infrastructure Master Plan

March 23, 2010

Attachment 3
Page 1 of 12

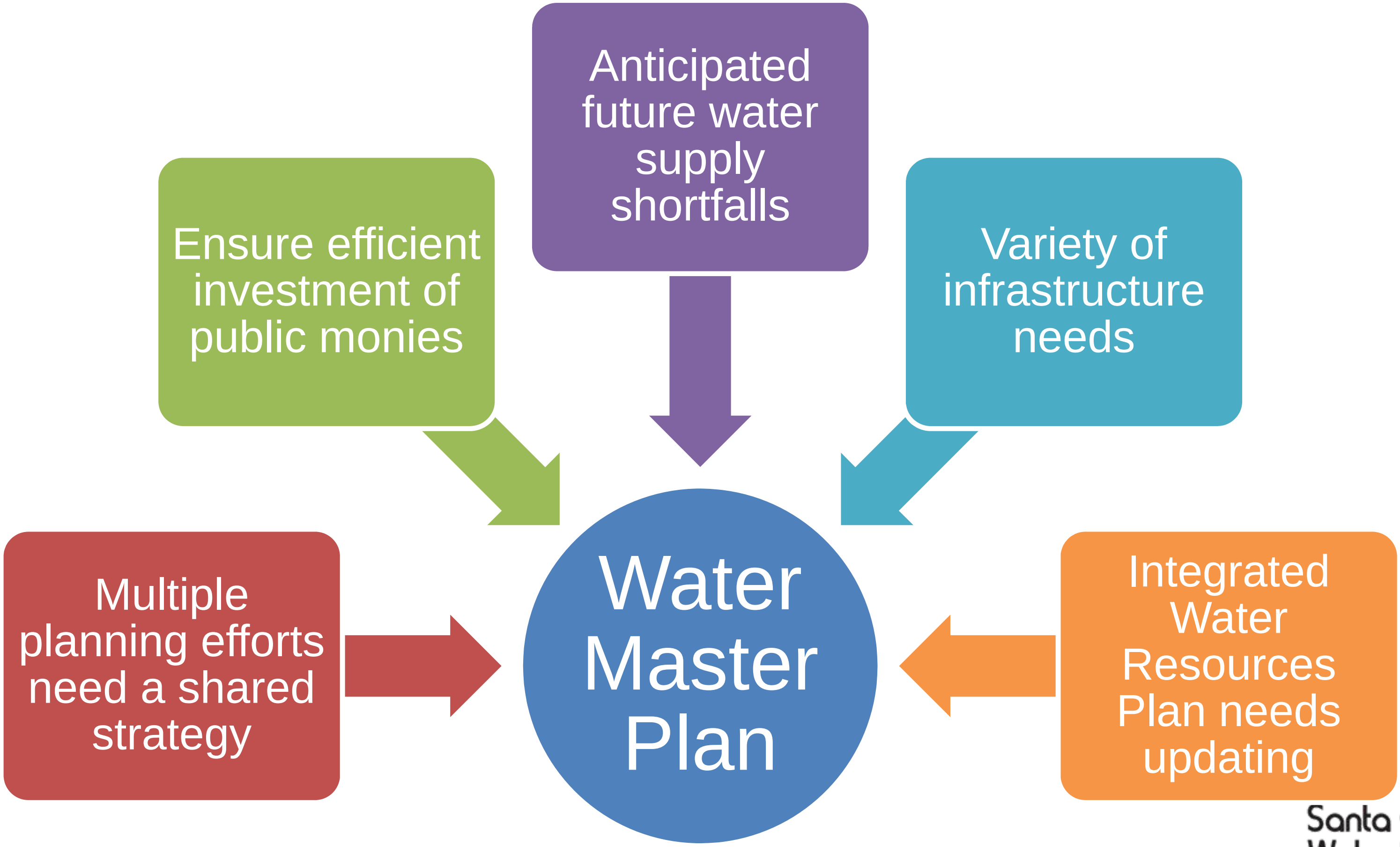
Santa Clara Valley
Water District

Three discussion topics

1. Drivers for the Water Supply and Infrastructure Master Plan
2. Master Plan Scope of Work
3. Stakeholder and Board Engagement Process

Santa Clara Valley Water District

Drivers for the Water Supply and Infrastructure Master Plan



Anticipated future water supply shortfalls

Ensure efficient investment of public monies

Variety of infrastructure needs

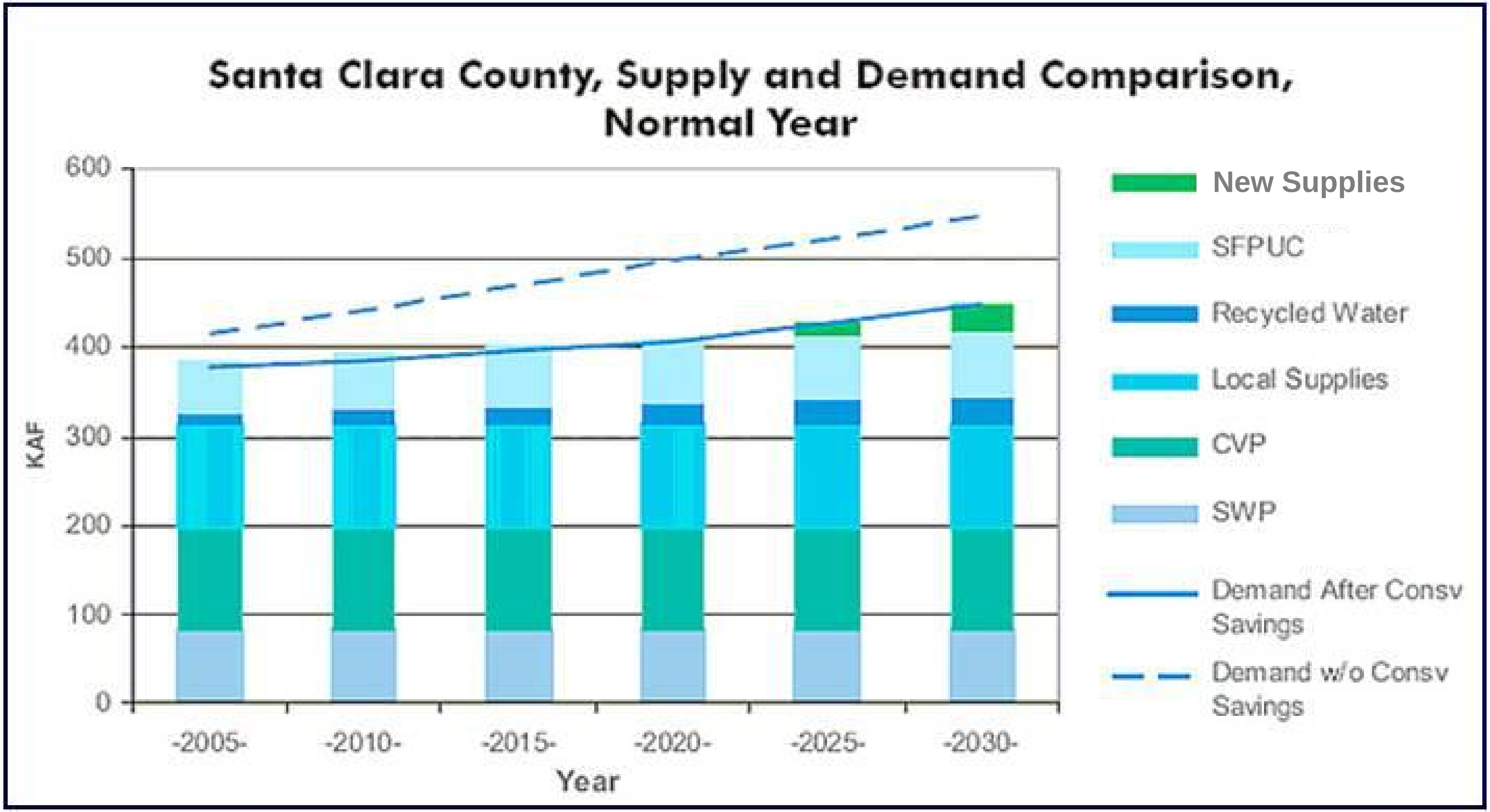
Multiple planning efforts need a shared strategy

Water Master Plan

Integrated Water Resources Plan needs updating

Santa Clara Valley Water District

Urban Water Management Plan projects water supply shortfalls



Attachment 3
Page 4 of 12

District has a number of infrastructure needs

- Aging infrastructure scheduled for renewal and replacement (e.g., Vasona pumping plant)
- Requirements limit storage, treatment, and/or distribution (e.g., dam operating permits)
- New supplies may need new infrastructure (e.g., treatment capacity)

Santa Clara Valley Water District

Master Plan Vision, Goal, and Objectives

Vision

- A sustainable, integrated, and fiscally responsible strategy for ensuring long-term water supply reliability

Goal

- Develop a multi-objective plan for guiding the strategic investment of public funds in securing a reliable supply of clean water for the County over the next 25 years

Objectives

- Articulate the District’s long-term water supply strategy
- Identify the water supply sources and infrastructure that will be needed over the next 25 years
- Link projects and programs
- Provide implementation framework based on risk, cost, and benefits

Water Master Plan will build on Board policies and historic efforts

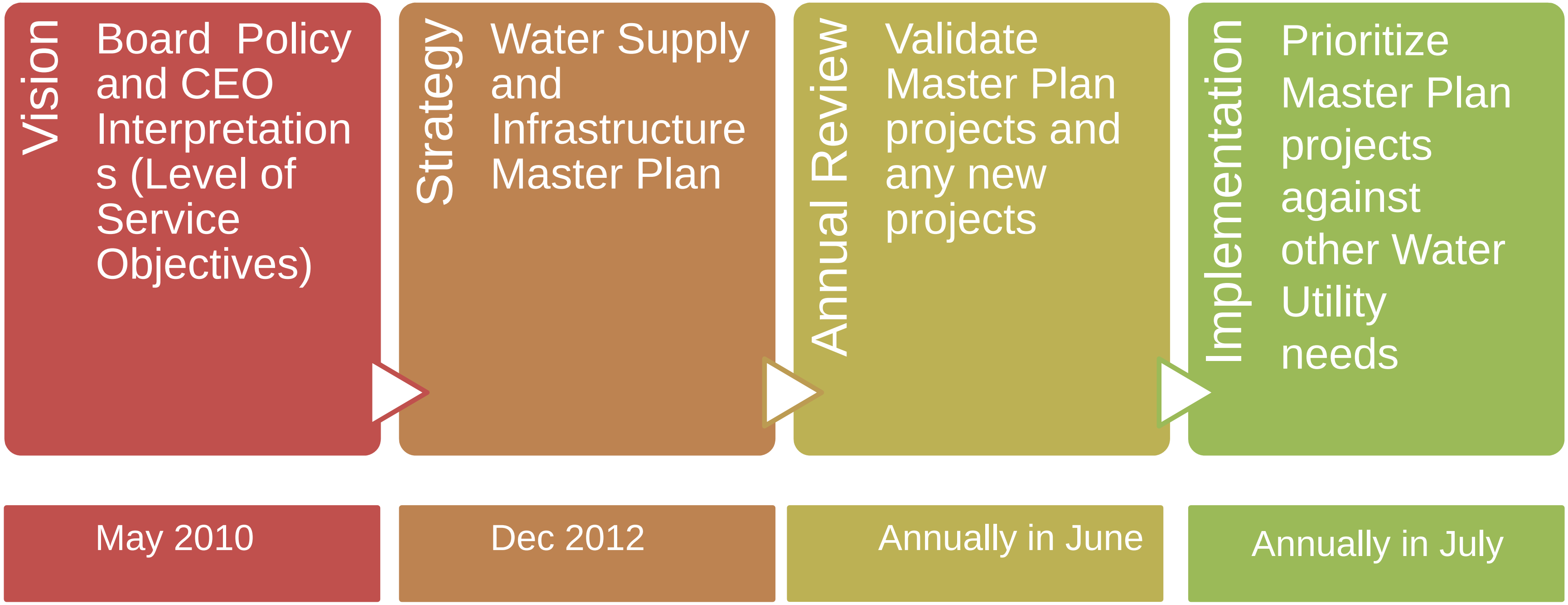
Report	**1975 Master Plan**	**IWRP 1997**	**IWRP 2003**	**Water Master Plan 2012**
Focus	Infrastructure	Supply	Supply	Infrastructure and Supply
Outcomes	• Pursue Central Valley Project import supply • Expand water distribution system • Expand and add treatment facilities	• Water banking • Recycled water • Conservation • Long-term water transfers	• Water banking • Conservation • Groundwater recharge • Dry-year transfers	• Preferred mix of water supply sources • Infrastructure needed to treat, convey, and store current and new supplies

Water Master Plan Tasks

- Baseline infrastructure assessment
- Supply and demand evaluation and needs assessment
- Assessment of energy optimization, climate change, and environmental impacts
- Infrastructure capacity evaluation and needs assessment
- Identify preferred mix of water supply sources and infrastructure needed to treat, distribute, and store supplies
- Implementation Plan for projects and programs, costs, and implementation schedule over the next 25 years

Santa Clara Valley Water District

Master Plan is part of a planning framework



Vision

Board Policy and CEO Interpretations (Level of Service Objectives)

May 2010

Strategy

Water Supply and Infrastructure Master Plan

Dec 2012

Annual Review

Validate Master Plan projects and any new projects

Annually in June

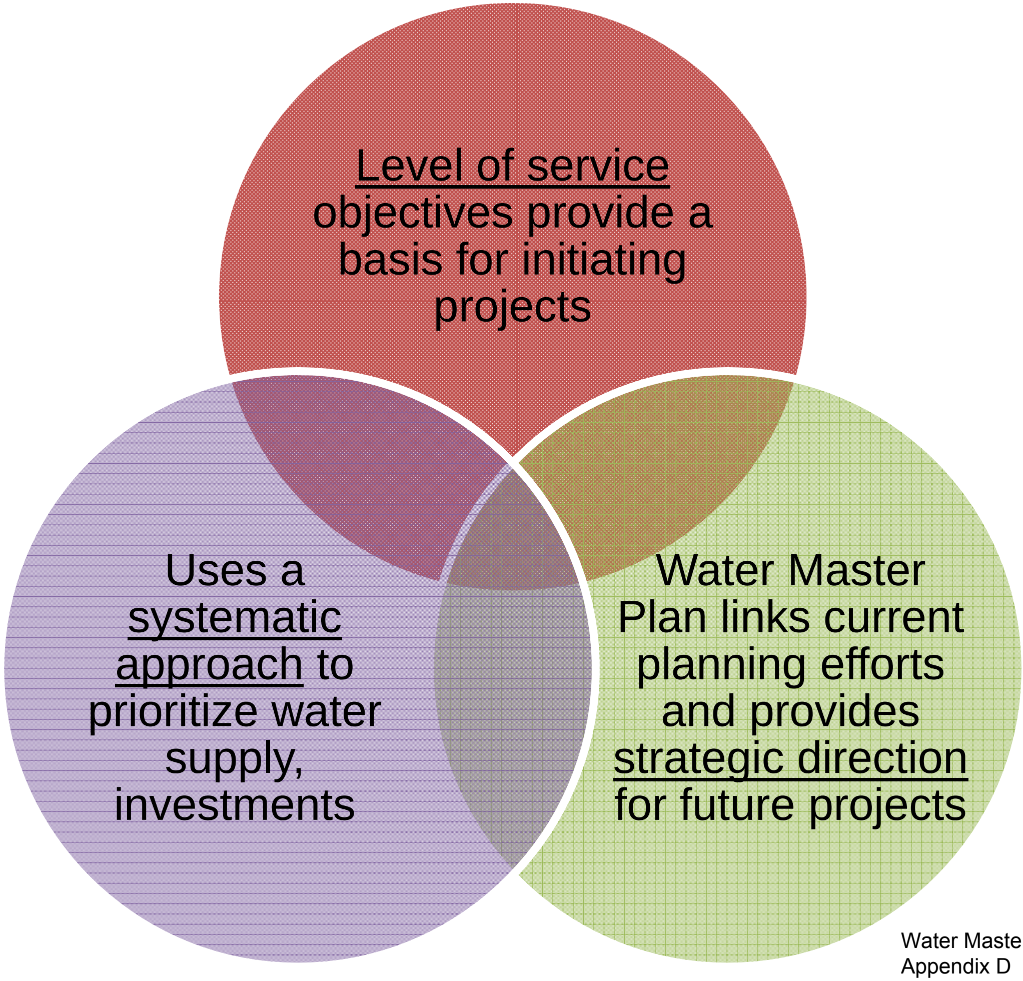
Implementation

Prioritize Master Plan projects against other Water Utility needs

Annually in July

Santa Clara Valley Water District

Planning process is a framework for improving the efficiency and effectiveness of planning



Level of service objectives provide a basis for initiating projects

Uses a systematic approach to prioritize water supply, investments

Water Master Plan links current planning efforts and provides strategic direction for future projects

Santa Clara Valley Water District

Stakeholder Review Committee will represent a broad range of interests

- Agriculture
- Business
- Environmental Advocates
- Homeowners
- Municipal Government
- Public Advocacy Groups
- Other Water and Wastewater Agencies
- Water Retailers

Santa Clara Valley
Water District

Multiple check-in points with the Board

- CEO Interpretations and existing water supply system conditions – May 2010
- Water supply outlook – December 2010
- Overview of water supply and infrastructure alternatives – June 2011
- Preferred water supply and infrastructure alternatives – December 2011
- Implementation Program and Draft Environmental Impact Report – May 2012
- Final Water Supply and Infrastructure Master Plan and EIR – December 2012

Santa Clara Valley Water District℠

FC 1025 (11/18/09)

Meeting Date:	01/25/11
Agenda Item:	10
Unclassified Manager:	S. Oblonsky
Extension:	2720
Director(s):	All

BOARD AGENDA MEMO

SUBJECT: Water Supply and Infrastructure Master Plan Project Update

RECOMMENDATION:

That the Board receive the update on the Water Supply and Infrastructure Master Plan project.

SUMMARY:

In March 2010, staff provided the Board with the drivers for and planned approach to preparing the Water Supply and Infrastructure Master Plan (Water Master Plan). At that time, the Board directed staff to continue work on the Water Master Plan. Staff is providing this update to the Board to keep them informed of progress on developing the Water Master Plan, findings to date, and upcoming activities.

The purpose of the Water Master Plan is to document the District's long-term strategy for providing an adequate supply of high-quality water to satisfy Board Ends Policy 2.1, which states "current and future water supply for municipalities, industries, agriculture and the environment is reliable." The Water Master Plan, with a planning horizon to 2035, will specify a preferred mix of water supply sources and demand management programs for meeting the County's future water demands. The Water Master Plan will identify new infrastructure and infrastructure upgrades that will be needed to treat, store, and convey future water supply sources.

By developing the District's long-term water supply strategy, the Water Master Plan will:

- Provide guidance for program-level planning by specifying the intended level of development of various supplies and demand management programs, i.e., acre-feet per year of conservation, imported supplies, local water, and recycled water,
- Provide direction for facility-level planning by establishing intended capacity for major facilities, i.e., treatment plants, pump stations, and pipelines, and
- Establish supply reliability levels of service, i.e., the anticipated magnitude and/or frequency of shortages.

The Water Master Plan is also closely linked to two other planning efforts. First, the Water Master Plan is being built on demand and supply analyses developed for the District's 2010 Urban Water Management Plan (UWMP). The UWMP, which is required by State law, provides a report on the countywide water use, demand projections and projected water supplies up to year 2035. The Board is scheduled to hold a public hearing on the UWMP in April 2011. Secondly, the Water Master Plan will serve as input into the District's Asset Management Plan that is under development. The Asset Management Plan will describe the state of the District's assets, establish levels of service, and document strategies for minimizing life-cycle costs. The asset management program is scheduled for a Board work study session on February 1, 2011.

Work Completed to Date Since the Last Board Update in March 2010

Staff began work on the Water Master Plan in February 2010. The following work tasks have been completed since the Board received its first update on this project in March 2010.

1. Water Supply and Infrastructure System Assessment: This task included documenting the existing water supply sources, infrastructure, and their conditions. Work included staff identification of strengths, weaknesses, opportunities, and threats (SWOT) associated with the water supply system. The diversity and complexity of the water supply and infrastructure system contributes to its strengths and provides a good foundation for incorporating additional supply opportunities. Other strengths include conservation programs and redundancy on the east side of the treated water system that links Santa Teresa Water Treatment Plan and Penitencia Water Treatment Plant. Opportunities include expanded recycled water use, additional groundwater recharge, and system reoperations to maximize existing supplies. At the same time, work is needed to address some weakness in and threats to the system, including availability and reliability of imported supplies, reservoir operating restrictions, and the potential for water quality contamination. A summary of the SWOT analysis is in Attachment 1.

2. Climate Change Conditions and Impacts Assessment: This task included identifying and evaluating different climate change impacts and how they can be addressed in water supply and infrastructure planning. This task is completed and its results will be used in two future Water Master Plan tasks. As part of Water Master Plan task to prepare the water supply system outlook, staff will analyze the impact of potential changes in runoff and demands on water supplies. In addition, as part of the Water Master Plan task to develop projects and programs to address future water supply needs, staff will evaluate and consider increases in the water use efficiency program, expanded integrated regional water management strategies, energy efficiency and greenhouse gas emission reductions, sea level rise, and increased temperatures.

3. Planning Objectives and Assessment Criteria Development: This task included developing planning objectives and assessment criteria for rating potential projects and comparing water resource portfolios. The following objectives and assessment criteria reflect values that should also be reflected in the Water Master Plan:

    - Maximize water supply reliability, measured as frequency and magnitude of water supply shortages, flexibility, and system reliability
    - Ensure drinking water quality, measured as variability in surface water, impacts on surface water quality, and impacts on groundwater
    - Minimize costs, measured by costs to the District (such as costs for construction and maintenance) and by costs to the community (such as costs of water shortages)

- Maximize water conservation, measured by reduced water usage
- Maximize implementation potential, measured by District influence over water supply operations and facilities and by the complexity of or barriers to implementation
- Protect the natural environment, measured by degree of benefit to watersheds, streams, and natural resources and by greenhouse gas emissions
- Ensure community benefits, measured by groundwater levels, flood protection, and recreational benefits

Ongoing and Upcoming Tasks

Stakeholder Engagement: Staff is conducting quarterly Stakeholder Review Committee meetings to obtain input on the Water Master Plan. Thus far, four committee meetings have been held. Participants include representatives from agriculture, business, environmental advocacy groups, municipal government, and public advocacy groups, and water retailers. In addition, staff has made presentations to various Board Advisory Committees, and one Chamber of Commerce. The feedback received to date includes recommendations to expand water conservation with an emphasis on outdoor water use, expand recycled water, ensure the quality of recycled water is appropriate for the intended use, and consider regional approaches. Some of the concerns that have been expressed include uncertainty related to Delta supplies and the need to document a sustainable level of water supply reliability as it relates to future growth. Staff will continue efforts to engage stakeholders in Water Master Plan development. The next quarterly Stakeholder Review Committee meeting is scheduled for April 18, 2011 and the Water Master Plan is on the April 2011 agendas for the Water Commission, Agricultural Water Advisory Committee, and the Landscape Advisory Committee. Six additional Stakeholder Review Committee meetings are planned, including the April 2011 meeting.

Water Supply System Outlook: This task includes analyzing demands, projecting future baseline supplies, analyzing water supply shortfalls, analyzing infrastructure constraints, analyzing risks, and identifying water supply system needs. This task is being completed in conjunction with the District's 2010 Urban Water Management Plan. The water supply system outlook indicates that demands for water in 2035 will be about 15 percent higher than current average demands, even with planned conservation efforts. Beginning in about 2025, additional supplies are needed to meet demands in, and recover from, dry periods. Water storage levels are projected to drop during droughts and do not recover sufficiently to meet needs in subsequent extended dry periods. In addition, the preliminary analysis indicates that by 2035 there is a shortfall between normal year supplies and normal year demands of about 30,000 acre-feet. Some combination of new supplies, storage, and/or conservation will be needed to address these shortfalls. The final water supply system outlook will be included in the UWMP, on which the Board is scheduled to hold a public hearing in April 2011.

Develop and Analyze Projects and Portfolios: This task includes identifying and evaluating potential projects and programs to meet the needs identified during the water supply system outlook. Potential projects include expanded recycled water use, expanded water use efficiency programs, connecting additional existing reservoirs to the raw water system, water transfers, reservoir expansion, additional groundwater recharge capacity, local desalination, and partnering in regional projects. Staff plans to present the results of this work to the Board in September 2011.

Identify Recommended Portfolio: This task includes identifying the recommended mix, or portfolio, of water supply projects, programs, and infrastructure for meeting future water supply needs. Staff plans to present the results of this work to the Board in December 2011.

Develop Implementation Program: This task includes developing an implementation program, including a schedule and financing, for the recommended portfolio. Staff plans to present the results of this work to the Board in March 2012.

Compile the Water Supply and Infrastructure Master Plan: Staff plans to present the Water Master Plan to the Board of Directors in August 2012.

FINANCIAL IMPACT:

There is no financial impact associated with this item. The FY11 budget for this project is approximately $730,000. The proposed budget FY 12 budget for this project is approximately $725,000.

ATTACHMENTS:

Attachment 1: Strengths, Weaknesses, Opportunities, and Threats Summary

Strengths, Weakness, Opportunities, and Threats Summary

	Strengths (Internal District)	Weaknesses (Internal District)	Opportunities (External)	Threats (External)
Sources of Supply	• District has multiple sources of supply including the groundwater basin, multiple local reservoirs, recycled water, imported SWP and CVP, transfers and exchanges, the SFPUC intertie and Semitropic water banking. • District has successful conservation programs	• Limited recharge capacity in Llagas Groundwater Subbasin • South county supplies are not as diverse as in north county	• Expand recharge in north or south county • Expand existing in-county reservoirs • San Luis Reservoir low point solution • Isolated facility or other Delta improvements • Partnerships with other agencies and companies on recycled water or local surface water supplies • Partnerships with other agencies for regional and local desalination • Los Vaqueros Reservoir Expansion • Pacheco Reservoir Expansion	• Decreased availability of CVP and SWP sources due to environmental restrictions, drought, pumping constraints or infrastructure failure (seismic or age) • Potential high cost of new infrastructure (reservoirs, etc.) • Uncertainty and potential high cost of Delta improvements • Interruptible SFPUC contracts; future decreases in SFPUC supplies • Growing statewide competition for limited resources • Climate change may lead to decreased supply availability and/or saltwater intrusion
Recycled Water and Water Conservation	• Recycled water use at 5% with plans to reach 10% in the future • Advanced Water Treatment Project enhances recycled water quality, increasing potential for expansion • 40-year recycled water agreement with the City of San Jose could increase recycled water use by an additional 50,000 acre-feet year • Plans to expand recycled water system in south county • Public perception of non-potable recycled water use is generally positive • Conservation is relatively inexpensive	• Community education and outreach efforts need to be implemented for indirect potable re-use	• Stormwater re-use or greywater use • Work with cities and County to adopted and implement water conservation ordinances • Indirect potable re-use through integration of advanced treated water into District's water supply system • Local land use agency policies for low-impact development may decrease demands • Partnership with City of San Jose for expansion of non-potable recycled water use and for potential future indirect potable re-use using SBWR water • Increase conservation among agricultural users	• Recycled water regulations could limit its expansion and use • Public perception of indirect potable re-use is unknown • Conflict or competition with other agencies (local or regional) for recycled water
Operational Flexibility and Efficiency	• Dual imported sources allow for moving water around state • District's complex system and multiple sources allow for great operational flexibility in most areas • District is monitoring GHG reduction and energy efficiency • Multiple raw water sources are available to supply the WTPs and groundwater recharge operations strategies	• Pacheco pump efficiency and San Felipe system capacity constraints can limit District capabilities to take max CVP contract allotment • DSOD operating restrictions on several reservoirs • An electrical system master plan is needed to streamline electrical improvements and improve energy efficiency throughout the District • Several irrigators on raw water pipelines are not well monitored, which leads to inefficient system operations • Limited raw water processing capacity on the west side	• Connect local storage reservoirs to the raw water pipelines or improve operations to increase beneficial use of water (Uvas, Lexington) • Maximize use of Calero reservoir, as it can receive water from 5 sources • Implement new technologies to make system more efficient (automated valves, electronic data transfer, etc.) • Retailer exchanges or use of retailer systems for transfer s • Determine if Semitropic water bank can be better utilized	• Environmental requirements can increase cost and complexity of project and program implementation • Decreased reliability and increased cost of power could limit District operations • HCP may require several new infrastructure projects in order for District to continue operations (fish passage, supplemental water supply systems, etc.) • San Luis low point problem can limit District abilities to take CVP water
Infrastructure Condition and Reliability	• Pipelines that have been inspected are in acceptable condition for their ages • Control systems master plan will improve reliability • Currently working on upgrading infrastructure and adding required service factor capacity at RWTP • District has a dam safety program and other programs to maintain current infrastructure • Recharge facilities have well maintained capacity • East treated water system has redundant sources and a redundant delivery pipeline SFPUC Intertie is available for system outages •	• Several dam outlet structures may need rehab • Several dam hydraulic operating systems are in poor condition and at risk of failure • Specific facilities in notably poor condition include Vasona and Almaden-Calero Canals, Vasona Pumps, Church Diversion Dam, several systems at PWTP • Most pipelines do not have cathodic protection • Pacheco, Santa Clara and Santa Teresa Tunnels have leakage that may require repair • No redundancy in some parts of system, especially on the west side treated system • Fixed treatment plant capacity • The water utility is not prepared to respond to earthquakes.	• Develop and implement a functional asset management program that replaces or rehabs infrastructure at appropriate times • HCP will provide permits for system maintenance • Add redundant pipelines where needed • West Pipeline extension or west side SFPUC connection • Westside package plant could provide some redundancy • South County water treatment plant • Implement IRP program to improve post-disaster reliability	• Potential seismic and spillway and freeboard upgrades at several dams due to DSOD regulations • Invasive species could degrade infrastructure or force isolation of facilities • South Bay Aqueduct has experienced frequent leaks • Delta levee failure could disrupt imported supplies • Sea level rise may impact some facilities • High-speed rail could impact some facilities, requiring upgrades or replacements • Catastrophic environmental threats such as earthquakes, floods, and landslides
Water Quality	• Advanced treatment processes (Ozone) were added at STWTP and PWTP	• Nitrate in south county groundwater • Dozens of groundwater cleanup sites throughout the county addressing fuel, solvents, and toxics leaks and spills	• Advanced treatment project is planned for RWTP	• Water quality contamination from potentially contaminating activities (septic systems, agriculture, recycled water use, chemical storage, etc.) • New potable water treatment regulations could impose new plant improvements including fluoridation and emerging contaminants

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Santa Clara Valley Water District℠

FC 1703 (02-17-10)

Meeting Date: 01/25/11
Agenda Item No.:
Manager: S. Oblonsky
Extension: 2720
Director: All

SUPPLEMENTAL BOARD AGENDA MEMORANDUM

SUBJECT: Water Supply and Infrastructure Master Plan Project Update

REASON FOR SUPPLEMENTAL MEMORANDUM:

Staff is providing additional background information on the Water Supply and Infrastructure Master Plan as follow up to Board discussion regarding providing detailed responses to advisory committee committees during the January 11, 2011 Board meeting.

RECOMMENDATION:

That the Board receive the update on the Water Supply and Infrastructure Master Plan project.

SUMMARY:

Staff is providing two additional attachments related to the Water Supply and Infrastructure Master Plan project. The first additional attachment contains detailed staff responses to comments received at two advisory committee meetings. The second additional attachment is a presentation on the Water Supply and Infrastructure Master Plan project.

FINANCIAL IMPACT CHANGE:

There is no change in the financial impact from providing this supplemental information.

ATTACHMENTS:

Attachment 1: Staff Responses to Advisory Committee Comments on the Water Supply and Infrastructure Master Plan
Attachment 2: Presentation on Water Supply and Infrastructure Master Plan

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Staff Responses to Advisory Committee Comments on the Water Supply and Infrastructure Master Plan

Comment	**Staff Response**
Guadalupe and West Valley Flood Control and Watershed Advisory Committees on 11/10/10	
Is there some environmental benefit to bringing recycled water up the Sunnyvale East Channel and allowing it to flow back into the bay? Does it have any indirect potable reuse application? What should cities be doing if the District moves towards indirect potable water reuses in the future?	District staff works with the recycled water producers to identify and evaluate options for recycled water, including streamflow augmentation. Staff has not yet evaluated the potential benefits and costs associated with releasing recycled water to Sunnyvale East Channel. Staff is continuing to evaluate indirect potable reuse opportunities. The District will work with cities on action plans if indirect potable reuse is recommended in the Water Master Plan.
Sunnyvale has a supply of recycled water available for sale	District staff works with the recycled water producers to identify and evaluate options using available recycled water supplies.
The general public, especially landscapers, need education about lawn installation and irrigation techniques consistent with water conservation efforts	The District has several water conservation programs directed toward both general audiences and landscapers that include water-efficient landscape and irrigation training workshops, providing rebates for replacing high water use landscapes, and providing on-site surveys to identify opportunities for improved water use efficiency. The District's website (http://www.valleywater.org/Programs/Landscaping.aspx) has information on landscaping for homeowners, businesses, and landscape professionals.
Ideally, the dual pipe system to supply recycled water to large users should be laid at the time of development for efficiency and cost effectiveness.	It is generally less expensive to install pipe system at the time of construction/development than to retrofit at a later time.
The tax base in most cities cannot support the costs for the dual pipe system	The decision about whether to lay dual pipe systems is currently made on a project-by-project basis by developers and land use agencies.
The biggest drawback for expanded use of recycled water is the removal of pharmaceuticals	The District is constructing an advanced recycled water treatment plant. The treated water will be blended into the existing recycled water system to enhance the quality of delivered water. In addition, the advanced water treatment plant will demonstrate the effectiveness of different treatment processes, including processes for removing pharmaceuticals.
Providing drug drop-offs at any fire or police station is beneficial in keeping pharmaceuticals out of the water system	The District supported, through public outreach efforts, a national one-day drop off event in 2010 and agrees that expanded local drop-off programs would benefit water quality. The District also encourages the wastewater treatment plants to continue drop-offs.

Comment	Staff Response
Lower Peninsula Flood Control and Watershed Advisory Committee on 11/15/10	
Since agriculture uses 80 percent of the water, more can be done to encourage changes/conservation in this sector. For example, Vertical Farming, a method developed in the U.S., is being used in Beijing, China with reported success.	Agricultural water use accounts for about 80 percent on water use on a statewide basis. In Santa Clara County, agricultural water use accounts for less than 10 percent of water use. The District offers technical assistance on agricultural irrigation efficiency to local growers and participates in statewide efforts to improve water use efficiency.
Conflicts between projected population growth and increased needs; and projected water supply from conservation, rainfall, desalination, etc., suggests that water supply should limit or cap development.	The Water Master Plan will evaluate the costs and benefits of different levels of water supply reliability that can be achieved with project population growth. The District will continue to work with the community and land use agencies to establish the level of reliability that should be used for planning.
A message from Association of Bay Area Governments or the State stating that a particular development would increase water needs by "x," in tandem with a message from the District stating that supplies are available for "y," may encourage local jurisdictions to review the need to limit development.	The District's water demand projections are based, in part, on Association of Bay Area Governments (ABAG) projections. The Water Master Plan will describe the ABAG population projection and the associated District water demand projection. As stated above, the District will continue to work with the community and land use agencies to establish the level of reliability that should be used for planning.
Building Codes for all new developments should require that dual plumbing systems be installed to facilitate and reduce resistance to switching to the use of recycled water when that becomes a reality.	The District encourages and supports local agency efforts incorporate water use efficiency (conservation and recycling) elements in their General Plans and various codes. The Water Master Plan will evaluate opportunities for expanding water use efficiency programs and policies.
A glossary providing an explanation whenever an acronym is used would be helpful.	The final Water Master Plan report will include a glossary. Staff is making sure to spell out any acronyms in presentations.

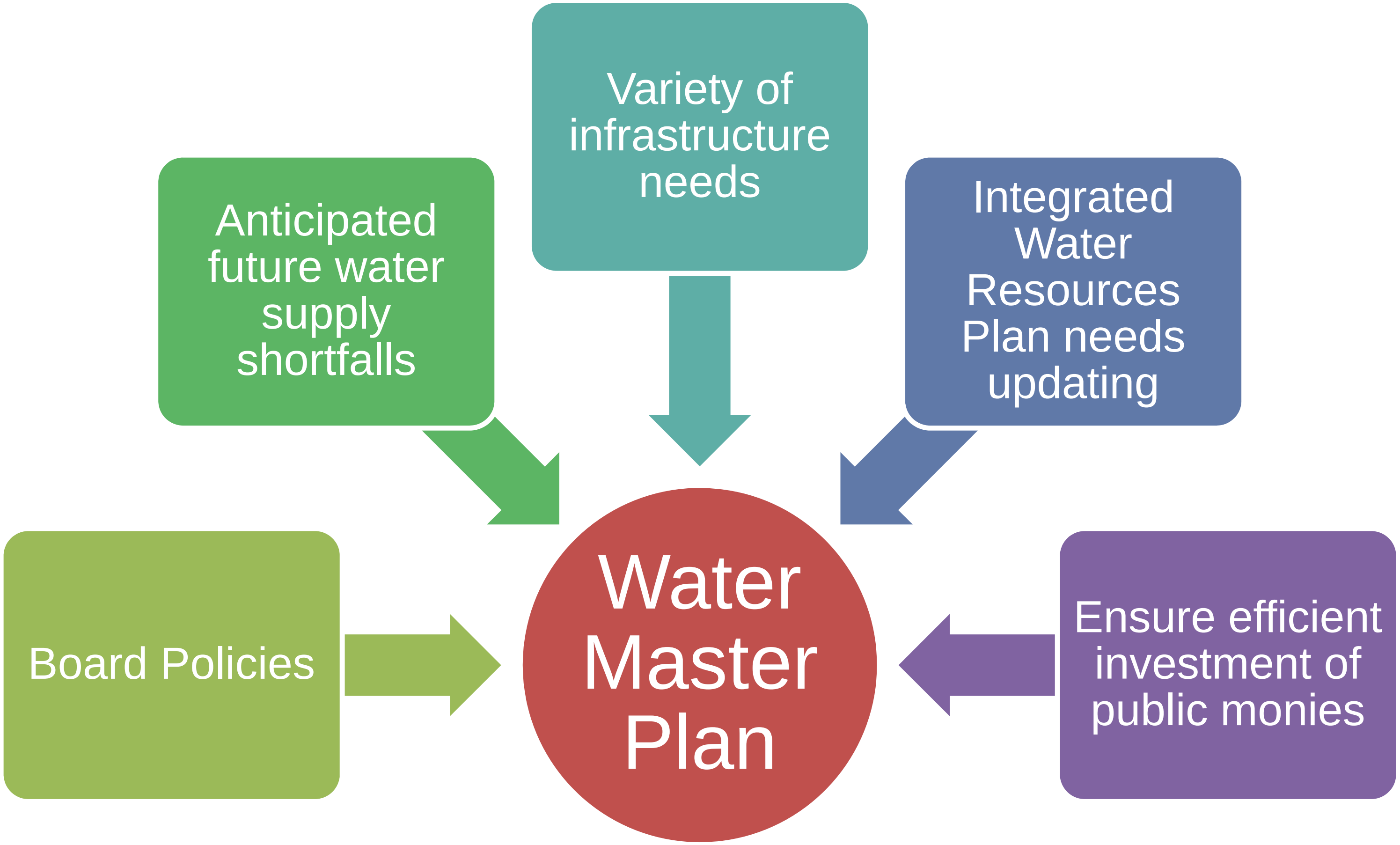
Water Supply and Infrastructure Master Plan Project

January 2011

Discussion topics

1. Purpose and content of the Water Supply and Infrastructure Master
2. Work completed to date
3. Ongoing and upcoming tasks
4. Schedule summary

Multiple drivers for the Water Supply and Infrastructure Master Plan (Water Master Plan)



Variety of infrastructure needs

Anticipated future water supply shortfalls

Integrated Water Resources Plan needs updating

Board Policies

Water Master Plan

Ensure efficient investment of public monies

The Water Master Plan will have several elements that describe how we will provide a reliable water supply

- Future water supply needs
- Preferred mix of supplies and demand management programs
- Identification of new infrastructure and infrastructure upgrades to meet future needs
- Implementation plan
  - Financial analysis
  - Schedule

The Water Master Plan's strategy will:

Specify the intended levels of development of various supplies

- Acre-feet per year of conservation, imported supplies, local water, and recycled water

Establish intended capacity for major facilities

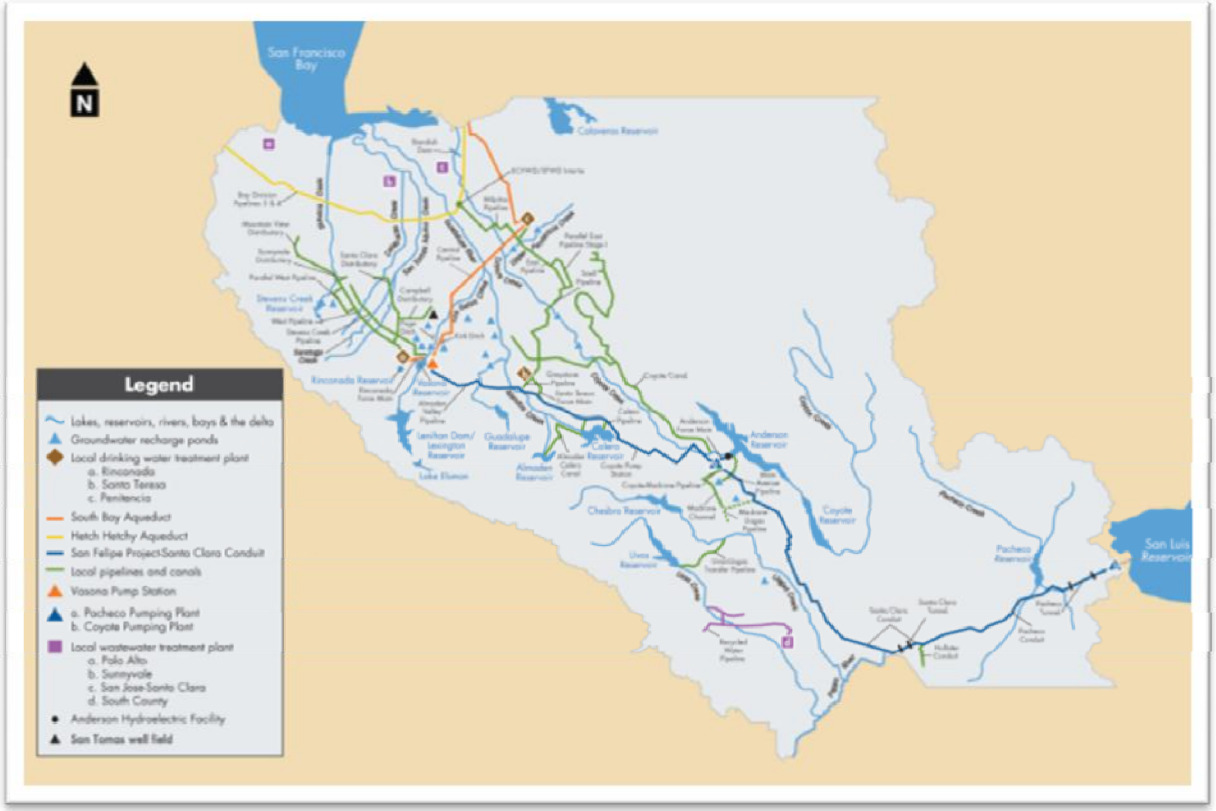
- Treatment plants, pump stations, and pipelines

Establish the level of service for water supply reliability

- Anticipate frequency and/or magnitude of shortages

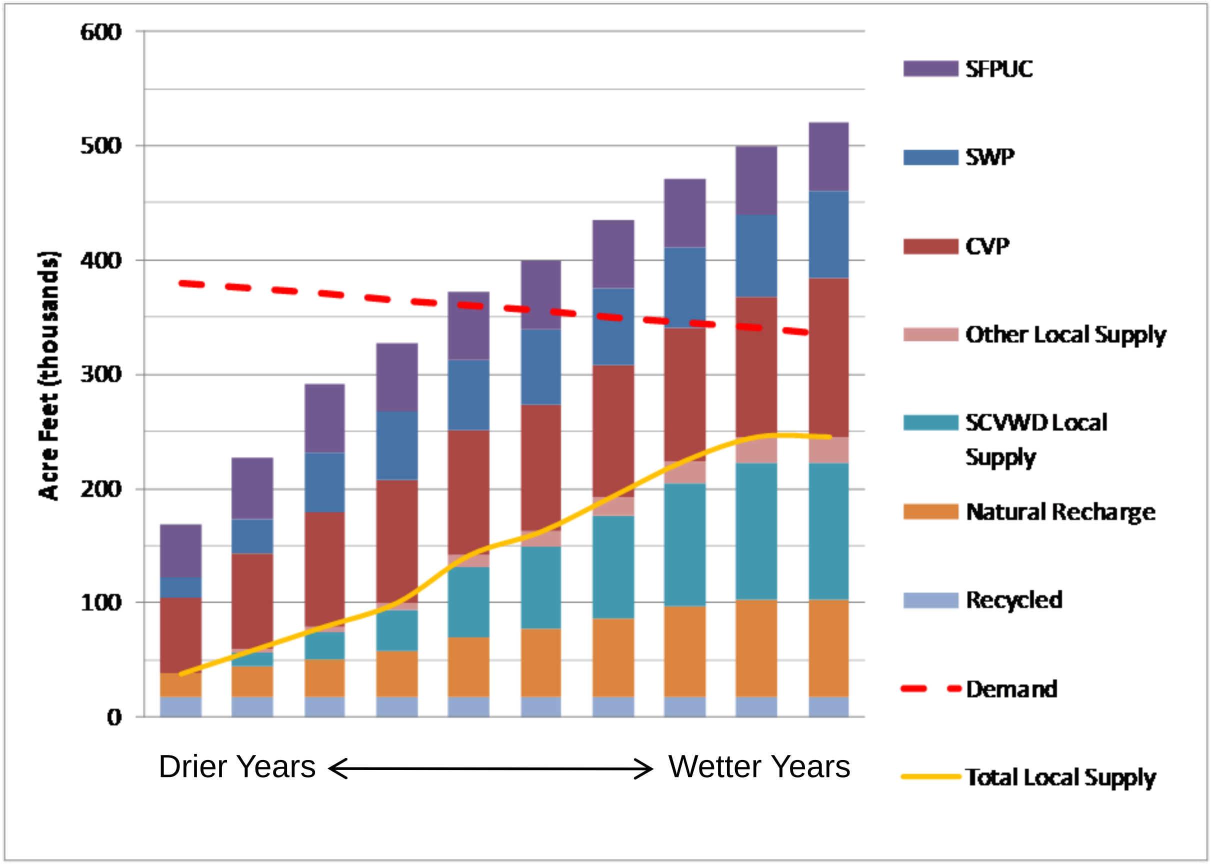
A complex infrastructure integrates natural and constructed systems

- **10** surface reservoirs
- **169** thousand AF total storage capacity
- **17** miles of canals
- **4** water supply diversion dams
- **393** acres of recharge ponds
- **91** miles of controlled in-stream recharge
- **142** miles of pipelines
- **3** water treatment plants
- **3** pumping stations



A variety of supplies meets the county’s water needs

- Demand may be higher in dry years
- Annual supplies exceed demand much of the time
- Local supply is insufficient to meet demands
- Recycled water is reliable in all weather
- Reserves help meet demands in dry years



The system has several other strengths, opportunities, and threats

Strengths

- Diversity and complexity
- Conservation programs
- Redundancy on east side treated water system

Opportunities

- Reoperations to maximize existing supplies
- Expanded recycled water use
- Expand groundwater recharge capacity

Threats and Weaknesses

- Availability and reliability of Delta supplies
- Water quality contamination
- Reservoir operating restrictions
- Aging infrastructure

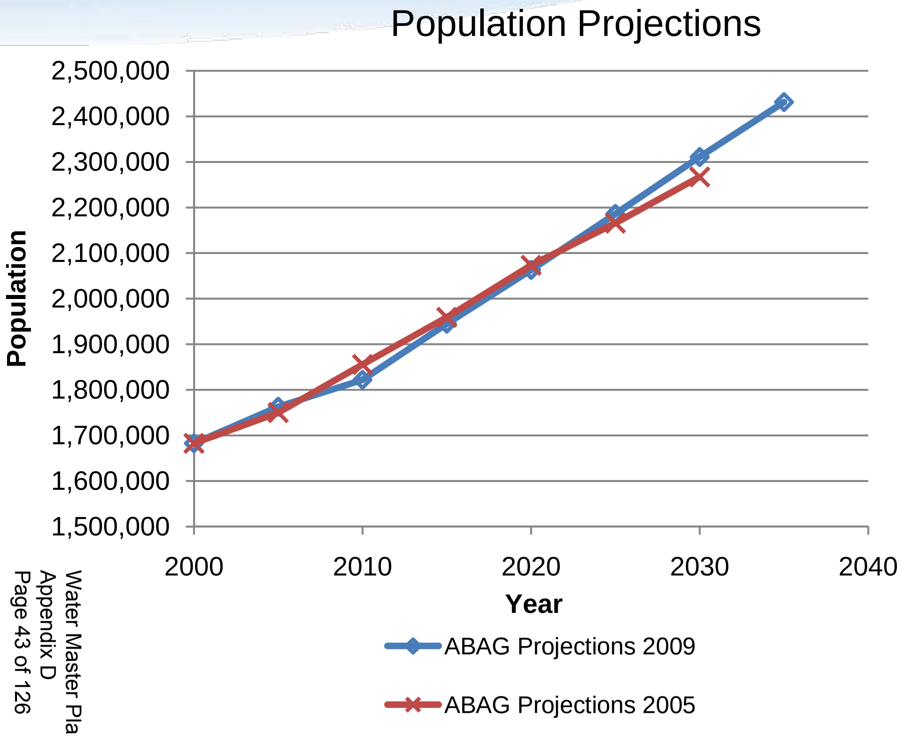
Climate change is an important planning consideration

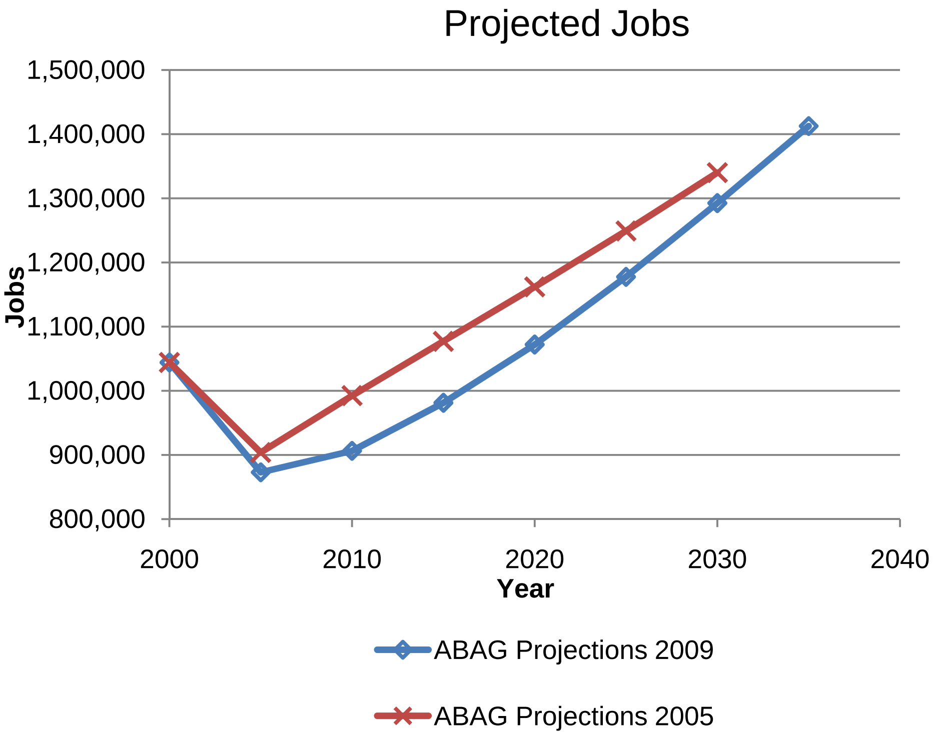
- Potential changes in rainfall, runoff, and water demands
  - Reduced snowpack affecting imported water supplies
  - Changes in the frequency and magnitude of rainfall events affecting imported and local supplies
  - Increases in demands due to increased temperatures, more droughts, and changes in rainfall patterns
- Adaptation strategies include:
  - increases in water conservation and water recycling programs
  - expanding integrated regional water management strategies
- Mitigation strategies include energy efficiency and greenhouse gas emission reductions

The Water Master Plan is a multi-objective planning process

Objective	Sub-Objectives
Ensure water supply reliability	Meet service area demands, maintain supply diversity, and maximize flexibility
Ensure drinking water quality	Maximize treatability, meeting drinking water quality regulations, and protect groundwater quality
Minimize cost impacts	Costs to the District and community
Maximize water conservation	Reduce water usage
Maximize implementation potential	Maximize influence and minimize implementation barriers
Protect the natural environment	Provide benefits to watershed, streams, and natural resources and maximize energy efficiency
Ensure community benefits	Avoid land subsidence, provide flood protection benefits, and provide recreational benefits

Countywide water demands will increase over time



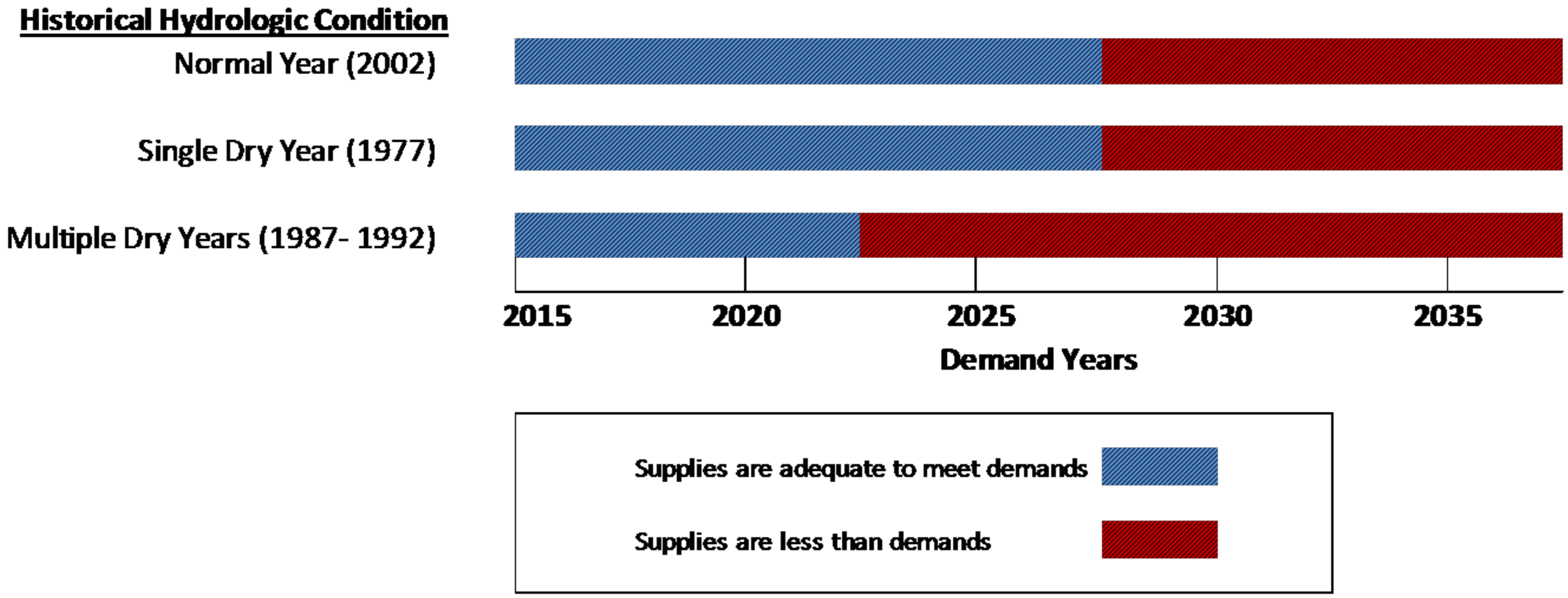


Countywide use (2007)	Projected demand (2035)
388,900 acre-feet/year	446,400 acre-feet/year

Water supply reliability is projected to decrease over time

- Imported Delta water supplies
  - Climate change impacts incorporated
  - Current operating restrictions incorporated
- SFPUC supplies
- Local supplies
  - Operating restrictions at the reservoirs
  - Maintaining fish flows in creeks could affect operations

Additional supplies will be needed to meet future demands



Water supplies are vulnerable to risk

- Climate change
  - Increased demands
  - Decreased supply reliability
- Infrastructure interruptions
  - Catastrophic events such as earthquakes
  - San Luis Reservoir Low-Point
- Regulatory restrictions and requirements
  - Delta exports
  - Reservoir operating restrictions
- Water quality contamination
- Institutional changes, such as changes in imported water contracts upon renewal

A variety of supplies may meet future needs

Recycled Water
- Expand non-potable recycled water use
- Begin indirect potable reuse

Water Use Efficiency
- Greywater and stormwater reuse
- Cooperate with other agencies to implement stricter requirements

System Re-operations
- Connect additional existing reservoirs to raw water system
- Add facilities to the West Side

Imported Water/Water Transfers
- Continue dry year transfers of imported water
- Purchase additional long-term imported water transfers

Expanded Storage
- Expand local reservoir storage capacity
- Add additional groundwater recharge capacity

Desalination
- Partner in regional desalination project
- Develop local desalination project

Stakeholder Review Committee represents a broad range of interests

- Agriculture
- Business
- Environmental Advocates
- Homeowners
- Municipal Government
- Public Advocacy Groups
- Other Water and Wastewater Agencies
- Water Retailers

Additional outreach and engagement activities include:

- Updates to District Board and Board Advisory Committees
- Updates to cities and retailers
- Speakers Bureau
- Coordination with outreach on other projects, such as Delta studies and recycled water

Advisory Committee Comments

Recycled Water

- Dual plumbing
- Indirect potable reuse
- Water quality, especially pharmaceuticals

Water Conservation

- Education on landscape irrigation
- Agricultural conservation

Growth versus Water Demands

- Provide messages about limited water supplies for growth

Stakeholder and Board engagement is ongoing

Event	Calendar Year 2011				Calendar Year 2012		
	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3
Stakeholder Engagement	◆	◆	◆	◆	◆	◆	◆
Water Supply Outlook and 2010 Urban Water Management Plan		◆					
Update on Projects to Meet Future Needs			◆				
Recommended Projects				◆			
Proposed Implementation Program					◆		
Water Supply and Infrastructure Master Plan							◆

Questions?

Santa Clara Valley
Water District

FC 1025 (08/17/11)

Meeting Date: 12/13/11
Agenda Item: 4.2
Unclassified Manager: J. Fiedler
Extension: 2736
Director(s): All

BOARD AGENDA MEMO

SUBJECT: Water Supply and Infrastructure Master Plan Update

RECOMMENDATION:

A. Receive an update on the Water Supply and Infrastructure Master Plan project;
B. Provide input to staff on potential water supply projects and strategies; and
C. Direct staff to continue development of the Water Supply and Infrastructure Master Plan.

SUMMARY:

The Board was last provided with an update on the development of the Water Supply and Infrastructure Master Plan (Water Master Plan) on January 25, 2011. At that time, staff described the purpose of the Water Master Plan and presented an update on work that had been completed to date. Information was provided on the evaluation of the existing water supply and infrastructure system, an assessment of potential climate change conditions and impacts, planning objectives and assessment criteria, and stakeholder input. Since that time, staff has completed the long-term water supply outlook, developed potential projects and programs for inclusion in the Water Master Plan, and identified alternative water supply strategies for addressing long-term water supply needs. Staff also continued stakeholder engagement efforts. The purpose of this item is update the Board on stakeholder input on the Water Master Plan, the long-term water supply outlook, and progress toward identifying a preferred water supply strategy for meeting future water supply needs. The Water Master Plan is scheduled to be completed in August 2012.

Water Master Plan Purpose and Linkage to Board Governance Policy

The purpose of the Water Master Plan is to establish a multi-objective plan for guiding investment of public funds in securing an adequate supply of high-quality water to satisfy Board Governance Policy E-2.1, which states “current and future water supply for municipalities, industries, agriculture and the environment is reliable.” The Water Master Plan will: 1) articulate the District’s long-term water supply strategy; and 2) identify the water supply sources and facilities that will be needed to ensure future water supply reliability. Thus, the Water Master Plan will inform the Five-Year Capital Improvement Program and annual budget development processes. This will improve efficiency and effectiveness of water supply planning by linking existing and future planning efforts and providing a financial investment strategy for securing water supply reliability through year 2035.

It is important to regularly update the District's water supply strategy to respond to changing water demand and supply conditions. The Water Master Plan builds on prior water supply and infrastructure plans, which include the:

- *Urban Water Management Plan* (2010), which documents existing and planned water supplies, anticipated demands for waters, and future water supply reliability;
- *Integrated Water Resources Planning Study* (2003), which evaluated strategies for responding to various future water supply risks;
- *Integrated Water Resources Plan* (1997), which addressed water supply needs during extended droughts such as the one that occurred from 1987 through 1992;
- *Master Plan for the Expansion of the In-County Water Distribution System* (1975), which detailed new facilities for using imported water from the Central Valley Project; and
- *Water Treatment Plan* (1962), which described how to transport, treat, and distribute supplies from the State Water Project.

Long-Term Water Supply Outlook

The Water Master Plan will describe the District's strategy for filling anticipated shortfalls between water demands and water supplies. Staff estimates that, due to projected increases in population and jobs in Santa Clara County, water demands countywide will increase from today's demands of about 350,000 acre-feet per year to about 425,000 acre-feet per year by 2035. At this demand level, demands are projected to exceed available supplies in normal rainfall years by approximately 4,000 acre-feet per year. The shortfall is anticipated to be greater during droughts, which historically have occurred in about 15 percent of years and last from three to six years. During an extended drought such as the one the occurred from 1987-1992 drought, staff anticipates an average shortfall of about 47,000 acre-feet per year and a maximum shortfall of 123,000 acre-feet per year. These water supply shortfalls can be managed through a combination of short-term water use reductions (ranging from voluntary behavioral changes to mandatory water use restrictions), new expanded long-term conservation programs, and/or new water supplies.

The District's future water supply strategy will build on existing supplies and water management strategies. Countywide water supply needs are met through: 1) water imported from the Delta through the Central Valley Project and the State Water Project (40 percent); 2) imported water delivered by the San Francisco Public Utilities Commission (15 percent); 3) local surface water (15 percent); 4) natural groundwater recharge (15 percent); 5) recycled water (5 percent); and water conservation (10 percent). The amount of water supply varies greatly from year to year, based primarily on precipitation levels locally and in the Sierra Nevada Mountains. In many years, supplies exceed demands. The District is able to store surplus water in local groundwater basins, the Semitropic Groundwater Bank, or local and statewide surface reservoirs for later use. In dry years, the District is able to draw on this stored water to meet water demands. In addition, the District, in partnership with the water retailers, conducts on-going water conservation programs that have resulted in demand reduction of more than 50,000 acre-feet per year. Conjunctive management, which is the coordinated and planned use and management of both surface water and groundwater resources, maximizes the availability and reliability of water supplies and is the foundation of the District's water supply program. Conjunctive management relies on an extensive and integrated infrastructure system that provides flexibility in how water is transported into and around the county, provides multiple options for storing supplies, and ensures water supplies are treated to meet or exceed drinking water standards.

The Water Master Plan relies on the assumption that the Five Year Capital Improvement Program and the Water Utility Enterprise Five Year Operations Plan are implemented and form the baseline for Water Master Plan recommendations. The baseline includes:

- Achieving 98,500 acre-feet of annual long-term conservation savings by 2035 (equivalent to about 23 percent of the total water supply),
- Collaborating with recycled water producers and retailers to achieve approximately 29,000 acre-feet of annual non-potable water recycling by 2035 (about seven percent of the total water supply),
- Maintaining San Francisco Public Utilities Commission supplies of almost 64,000 acre-feet per year,
- Completing the Anderson Dam Seismic Retrofit project before 2020,
- Completing the Main and Madrone Pipelines Restoration project, which will reconnect Anderson Reservoir to groundwater recharge facilities in the Llagas Subbasin, by 2015,
- Completing facility renewal projects at Rinconada Water Treatment Plant,
- Protecting local water rights by implementing the Three Creeks Habitat Conservation Plan, and
- Participating in statewide efforts to restore the reliability of supplies imported through the Delta such as the development of the Bay Delta Conservation Plan.

Options to Meet Future Water Supply Needs

The foundation for the selection of a preferred water supply strategy is the set of planning objectives developed in conjunction with stakeholders and presented to the Board on January 25, 2011. The planning objectives are based on Board policies and used to guide development of projects and programs and for comparing various alternatives for meeting future water supply needs. Attachment 1 summarizes the planning objectives and associated Board policies, sub-objectives, and evaluation criteria.

There are three major steps in the decision-making process for selecting the preferred water supply strategy, illustrated on Page 10 of Attachment 2. These steps include: 1) identify and screen water supply projects and programs that best meet the planning objectives, 2) develop and evaluate water supply strategies for meeting future long-term water needs, and 3) recommend a preferred water supply strategy.

Step 1. Identifying and Screening Water Supply Projects and Programs (Completed April 2011)

Staff developed a list of 60 potential projects and programs that could help meet future water supply needs. These projects and programs would supplement baseline supplies and water conservation. The projects and programs were developed by reviewing existing reports, reviewing the existing water supply and infrastructure system, and meeting with staff and stakeholders. Staff then developed additional detail on each project, such as the project description, estimated water supply yield, costs, schedule, and implementation issues. Approximately 25 projects were deferred for future consideration as technically or economically infeasible or lower benefit/cost ratio compared to other projects. Potential project types for supplementing the baseline are summarized on Page 11 of Attachment 2 and include:

1. Additional conservation of 300 acre-feet per year beyond the baseline of 98,500 acre-feet per year conservation by 2035;

2. Additional water recycling of 240 to 700 acre-feet per year beyond the baseline of 29,000 acre-feet per year for such non-potable uses as landscape irrigation or cooling towers;
3. Indirect potable reuse of up to 20,000 acre-feet per year per project, which includes advanced treatment of recycled water (with microfiltration, reverse osmosis, and ultraviolet disinfection) and using it for groundwater recharge;
4. New groundwater recharge ponds with an estimated average annual yield of approximately 2,000 to 8,000 acre-feet per year;
5. Additional agreements for up to 30,000 acre-feet per year of imported water, including agreements for dry year water supplies;
6. Regional desalination that would provide an average annual water supply yield of 2,000 acre-feet per year;
7. Pipelines between reservoirs and raw water pipelines, such as connecting Uvas Reservoir to the Santa Clara Conduit, which would provide an average of up to 3,000 acre-feet per year; and
8. Reservoir expansion of up to 100,000 acre-feet of additional storage with average annual yields of up to 15,000 acre-feet per year.

Step 2. Developing and Evaluating Water Supply Strategies (Completed October 2011)

The next step in the decision-making process combined various projects into water supply strategies designed to meet the county's future water needs. Different approaches can be used to combine projects into strategies. Sometimes, strategies are developed that focus on a particular type of project. Other times, strategies are developed that focus on achieving specific planning objectives. Staff used the later approach and developed eight strategies, each of which was designed to maximize benefits and minimize costs for a particular planning objective or sub-objective. The eight strategies focused on:

1. Develop Local Supplies: Includes developing local water supply sources such as indirect potable reuse and pipelines between reservoirs and raw water pipelines.
2. Maximize System Flexibility: Includes reservoir expansion to help manage outages, droughts, and future climate change impacts and pipelines between reservoirs and raw water pipelines to make better use of runoff during high stream flow periods.
3. Improve Groundwater Quality: Includes new groundwater recharge ponds to increase recharge capacity and reservoir expansion projects to provide additional supply of high quality water for recharge.
4. Maximize Treated Water Quality: Includes reservoir expansion to provide water for blending, additional treatment plant capacity including a South County treatment plant, and regional desalination to provide a high quality source of water during droughts.
5. Minimize Costs: Includes lower cost options such as new groundwater recharge ponds, imported water dry year option and exchange agreements, gray water reuse, and a low cost recycled water project.
6. Maximize Implementation Potential: Includes projects that have a high level of District influence and/or the District has successfully implemented in the past, including new groundwater recharge ponds, imported water agreements, and pipelines between reservoirs and raw water pipelines.
7. Protect the Natural Environment: Includes projects that minimize impacts on the environment, such as new groundwater recharge ponds and indirect potable reuse.
8. Provide Community Benefits: Includes reservoir expansion and new groundwater recharge ponds to provide recreation and flood protection benefits.

Each strategy was first evaluated, using District modeling tools, for how well it would perform during an extended drought. Specifically, staff estimated the level of short-term water use reductions that would be called for using the District Water Shortage Contingency Plan to determine whether the strategies met the reliability goal[1]. Staff rated all strategies for how well they achieved all the planning objectives. Based on the initial evaluation, staff revised the projects included in the different strategies to maximize benefits and minimize short-term water use reductions. Some 50 combinations of projects were evaluated.

Staff recommends moving forward with further evaluation of three strategies:

1. Develop Local Supplies;
2. Maximize System Flexibility; and
5. Minimize Costs.

The other five strategies are not recommended for further consideration because the key benefits and/or projects are otherwise captured in Strategies 1, 2, and 5, as discussed below:

3. Improve Groundwater Quality: The key benefits of this strategy are captured in Strategy 1-Develop Local Supplies. The key types of projects in this strategy are captured in Strategy 1-Develop Local Supplies and Strategy 2-Maximize System Flexibility.
4. Maximize Treated Water Quality: This strategy provides little improvement in water supply reliability and is relatively expensive. Some of the benefits and project types associated with this strategy are captured in Strategy 2-Maximize System Flexibility.
6. Maximize Implementation Potential: This strategy provides little improvement in water supply reliability. Most of the projects in the strategy are captured in Strategy 1-Develop Local Supplies, Strategy 2-Maximize System Flexibility, and Strategy 5-Minimize Costs.
7. Protect the Natural Environment: The key benefits and project types associated with this strategy are captured in Strategy 1-Develop Local Supplies.
8. Provide Community Benefits: This strategy provides little improvement in water supply reliability. Most of the projects in the strategy are captured in Strategy 1-Develop Local Supplies and Strategy 2-Maximize System Flexibility.

The three strategies that staff is recommending for further evaluation are summarized below:

Strategy 1 - Develop Local Supplies: Focuses on developing approximately 25,000 acre-feet per year of indirect potable reuse, or groundwater recharge with advanced treated recycled water. The key benefit of this strategy is that it is the only strategy that does not require supplemental drought supplies from outside the county to meet the short-term water use reduction target of less than 20 percent in any given year. In addition, this strategy provides groundwater quality benefits because advanced treatment removes nearly all the salts from the water that is used for recharge and this will result in higher quality water being recharged into the groundwater basin. Over time, this is expected to improve groundwater quality. It also provides environmental benefits by helping to maintain reservoir supplies that are used to meet flow and temperature requirements for fish in local creeks and reduces the amount of freshwater discharged to South San Francisco Bay from the wastewater treatment plants.

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[1] The reliability goal for the Water Master Plan is based on the District's Water Shortage Contingency Plan, which is part of the District's Board-adopted 2010 Urban Water Management Plan. The Water Shortage Contingency Plan is designed to avoid having to call for more than a 20 percent reduction in water use in any given year of an extended drought. A 20 percent reduction in water use equates to about 84,000 acre-feet using estimated water demands in 2035. This reduction in water use is a short-term reduction and is in addition to long-term water conservation savings. Avoid calling for short-term water use reductions of more than 20 percent, is a minimum goal. District staff is evaluating strategies that would have lower calls for short-term water use reductions, including avoiding all calls for short-term water use reductions.

This strategy faces potential public acceptance issues, though it is anticipated that the District's recycled water outreach strategy will address these issues. The permitting process for indirect potable re-use is complex. The strategy's estimated present value cost, which includes capital and operations and maintenance costs, is approximately $600 to $700 million. The planning level estimated cost is approximately $350 to $425 per acre-foot.

Strategy 2 - Maximize System Flexibility: Focuses on developing up to 20,000 acre-feet per year of water supply through reservoir expansion and/or retrofits and constructing pipelines between the reservoirs and the District's raw water transmission system. The key benefit of this strategy is that is provides additional storage to mitigate short- and long-term risks. Short-term risks include outages in Delta supplies or water quality problems such as algae blooms in San Luis Reservoir. In the long-term, additional storage is a good adaptation strategy for responding to the likely increase in the intensity of rainfall events resulting from climate change and can provide recreation benefits. This strategy requires supplemental supplies, from either regional desalination or additional imported water agreements, to meet the short-term water use reduction target.

There are potential public acceptance issues and multiple State agencies would be involved in permitting, including Division of Safety of Dams, Department of Public Health, State Water Resources Control Board, and Department of Fish and Game. The estimated present value cost of this strategy ranges from about $400 million to $600 million. The planning level estimated cost is approximately $400 to $900 per acre-foot.

Strategy 5 - Minimize Costs: Focuses on additional imported water agreements that would provide approximately 30,000 acre-feet per year of water during critically dry years. The key benefit of this strategy is that its estimated present value cost is approximately $100 million. In addition, this strategy would focus on developing supplies for meeting water supply needs during droughts, when they are most needed. The key risk associated with this strategy is that the entire supply could be disrupted if there was an outage in the San Francisco Bay Delta. The planning level estimated cost per acre-foot for this strategy ranges from approximately $200 per acre-foot to $450 per acre-foot, depending on the type of imported water agreement.

Staff is currently including 300 acre-feet of gray water use and 500 acre-feet of non-potable reuse in all the strategies. These projects are included in all strategies due to their low cost and multiple benefits. Together, these projects have a relatively low cost (present value cost of $3.8 million or about $200 per acre-foot) and reduce or offset potable water demands by about 800 acre-feet per year. These are new projects and not included in the baseline.

Step 3: Recommend Preferred Water Supply Strategy (Scheduled to Be Completed in April 2012)

The final step in the planning process is to recommend a preferred water supply strategy. The preferred water supply strategy could be one of the strategies described above or a hybrid strategy that minimizes the need for short-term water use reductions, minimizes costs, and/or provides more benefits. The recommendation will be based on several factors, including an economic analysis of benefits and costs and stakeholder and Board input on the water supply strategies.

Stakeholder Input

Staff has made presentations on the Water Master Plan to all the Board's advisory committees and various other groups, including the Water Retailers Committee and subcommittees, throughout the project. In addition, the project's stakeholder committee (consisting of about 14 representatives from business and industry, cities, environmental and community advocate groups, wastewater agencies, and water retailers) has been meeting at least quarterly since May 2010 to provide input and receive progress updates on the Water Master Plan. Stakeholders have provided the following input to staff on the Water Master Plan:

- Maintain water supply reliability,
- Plan for population increases and climate change,
- Continue an aggressive level of water conservation programs,
- Evaluate regional recycled water projects,
- Consider indirect potable reuse projects,
- Be aware of concerns about local reservoir expansion,
- Investigate regional projects such as Los Vaqueros Reservoir Expansion, and
- Address concerns about the reliability of imported supplies from the Delta.

The water supply strategies were discussed with the stakeholder committee in July 2011 and October 2011. "Develop Local Supplies" strategy, with its focus on indirect potable reuse, received the most support because it develops local supplies, builds on existing infrastructure and institutional agreements, and, according to one stakeholder, it is the "most sustainable." Some stakeholders expressed concern about expanding reservoirs due to concerns about expanding inundation areas, impacts on fisheries and the environment. Several stakeholders expressed an interest in avoiding new imported water supplies, due to concerns about the reliability of water supplies from the San Francisco Bay Delta. In October, stakeholders were asked to rate the three strategies against the planning objectives. The average ratings are illustrated in Slide 26 of Attachment 2.

Next Steps

Following today's discussion, staff will work with stakeholders to develop a preferred water supply strategy. Staff plans to present that strategy, along with a proposed implementation plan, to the Board in April 2012. The implementation plan will include supply and demand triggers for starting projects or re-evaluating the water supply strategy; a planned schedule for beginning project-specific planning; and an evaluation of financing and water rate impacts. Staff plans to present the Water Supply and Infrastructure Master Plan Report (Report) by August 2012. The Report will be presented to the Board as a planning study, which under the California Environmental Quality Act (CEQA) does not require preparation of an Environmental Impact Report or Negative Declaration. Staff will continue evaluating environmental aspects as the implementation plan and Report are developed and report any changes in the project scope or schedule to the Board.

FINANCIAL IMPACT:

None, this is a discussion item.

CEQA:

None, this is a discussion item.

ATTACHMENTS:

1. Water Supply and Infrastructure Master Plan Planning Objectives Summary
2. PowerPoint Presentation: Water Supply and Infrastructure Master Plan Update

Water Supply and Infrastructure Master Plan Planning Objectives Summary

Planning Objective	Board Policy	Sub-Objective	Evaluation Criteria
Ensure water supply reliability	E-2.1: Current and future water supply for municipalities, industries, agriculture and the environment is reliable	Meet service area demands	Calls for short-term water use reductions do not exceed 20 percent reduction
		Develop local supplies	Local and regional supplies are maximized to minimize risks associated with the reliability of imported supplies
		Maximize flexibility to respond to change	Changes in water demands and/or water supplies due to climate change impacts or changes in projections are accommodated The alternative integrates with or complements existing infrastructure The alternative provides redundancy for outages of supplies and/or infrastructure
Ensure drinking water quality	E-2.1.1: Aggressively protect groundwater basins from the threat of contamination and maintain and develop groundwater to optimize reliability and to minimize land subsidence and saltwater intrusion E-2.3 – Reliable high quality drinking water is delivered	Protect groundwater quality	Groundwater quality is maintained or improved
		Meet drinking water quality regulations	Treated water will consistently meet existing and anticipated drinking water regulations
		Maximize treatability	High quality source water is available for blending
Minimize cost impacts	EL -5.4: A BAO shall not spend extravagantly, inefficiently, or in ways more costly than necessary	Minimize lifecycle costs	Present value cost

Planning Objective	Board Policy	Sub-Objective	Evaluation Criteria
Maximize implementation potential	E-1.2: Engagement with federal, state, regional and local agencies, water retailers and the community is necessary.	Maximize District influence over supplies and operations	District-controlled supplies and supplies developed in partnership with other local and regional agencies are maximized
		Minimize implementation complexities and barriers	Public support is or can be developed Legal, regulatory, and technical complexity is minimized Implementation can be phased
Maximize water conservation	E-2.1.6: Maximize water use efficiency, water conservation and demand management opportunities	Maximize water conservation	Additional water conservation savings above the 98,500 acre-feet per year anticipated in the Urban Water Management Plan are provided
Protect the natural environment	E-4.1: Healthy creek, bay and other aquatic ecosystems E-4.2: Clean, safe water in creeks and bay E-4.3.2: Reduce greenhouse gas emissions when reasonable and appropriate	Provide benefits to watersheds, creeks, and natural resources	Benefits are provided to in-stream and riparian habitat and to in-stream water quality
		Reduce greenhouse gas emissions	Greenhouse gas emissions are reduced
Ensure community benefits	EL-2: With respect to interactions with consumers or those applying to be consumers, the BAOs shall not cause or allow conditions, procedures, or decisions which fail to fulfill reasonable consumer expectations for good service, are unsafe, undignified, or unnecessarily intrusive. E-3.2: Reduced potential for flood damages E-4.3.1: Support additional trails, parks and open space along creeks and in the watersheds when reasonable and appropriate.	Ensure equitable distribution of benefits	Water supply benefits are provided throughout the District's service area The likelihood of disruption is the same throughout the District
		Provide flood protection and recreation benefits	Water-based recreational opportunities are expanded Flood protection benefits associated with District water supply facilities are maximized

Water Supply and Infrastructure Master Plan Update

Tracy Hemmeter
Senior Project Manager

Recommend the Board provide input on water supply projects and strategies

- Project Purpose and Background
- Water Supply Needs
- Process for Developing New Water Supply Projects and Strategies
- Preliminary Results
- Next Steps

Water Master Plan Purpose

- The Water Master Plan will guide investments for achieving Board Ends Policy E-2.1: Current and future water supply for municipalities, industries, agriculture and the environment is reliable by:
  - articulating the District's long-term water supply strategy and
  - Identifying the water supply sources and facilities that will be needed to support the long-term water supply strategy

Water Master Plan will also address future water needs, especially drought needs

Completed

- Assess existing supplies and infrastructure
- Evaluate climate change impacts
- Determine future water supply needs
- Develop planning objectives

In Progress

- Develop water supply projects and programs
- Evaluate projects and programs
- Develop alternative water supply strategies
- Evaluate water supply strategies

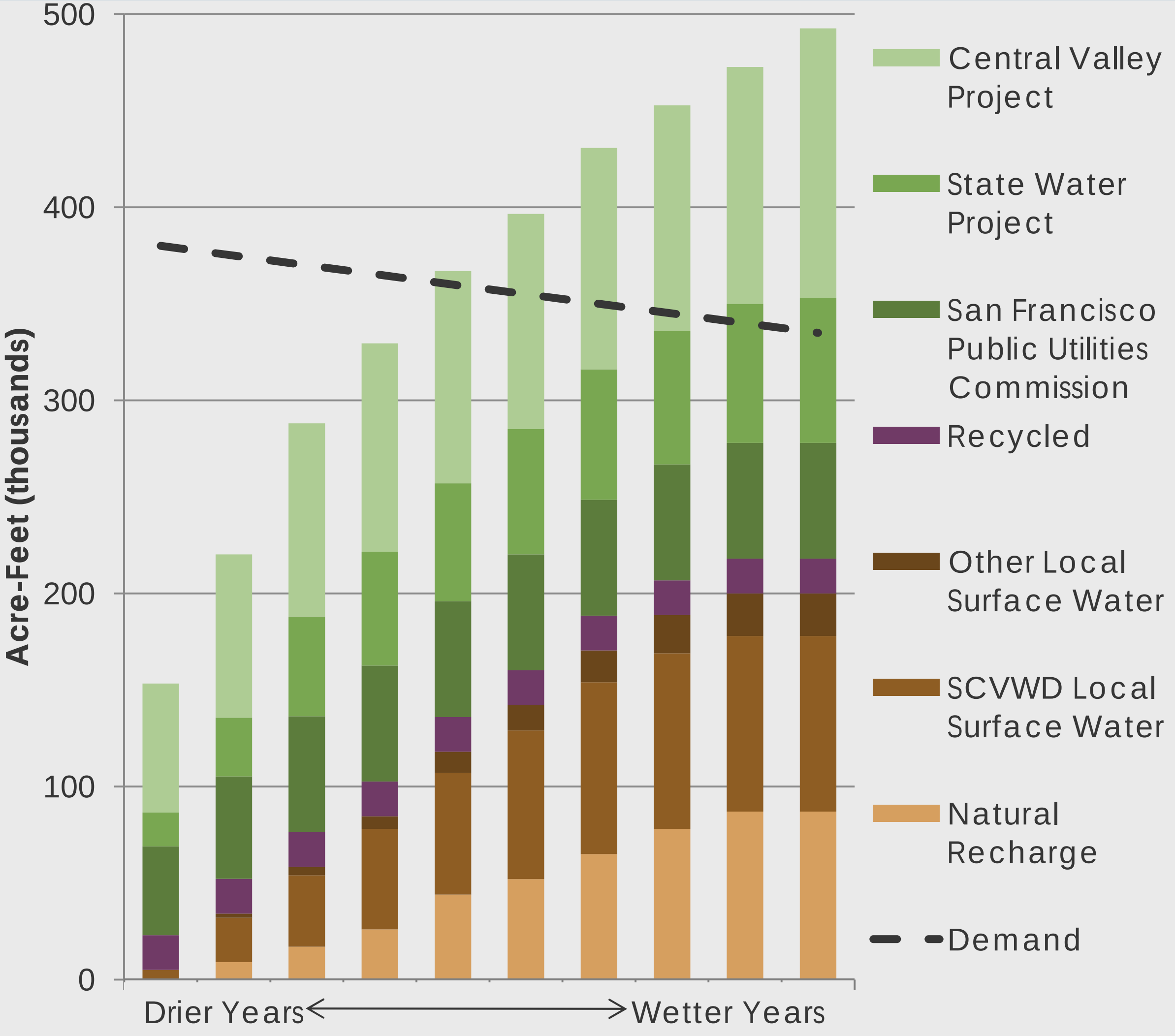
Next Steps

- Identify preferred water supply strategy
- Select recommended strategy
- Develop implementation program
- Compile Water Supply and Infrastructure Master Plan

Stakeholder Engagement

Currently, annual supplies exceed demands much of the time

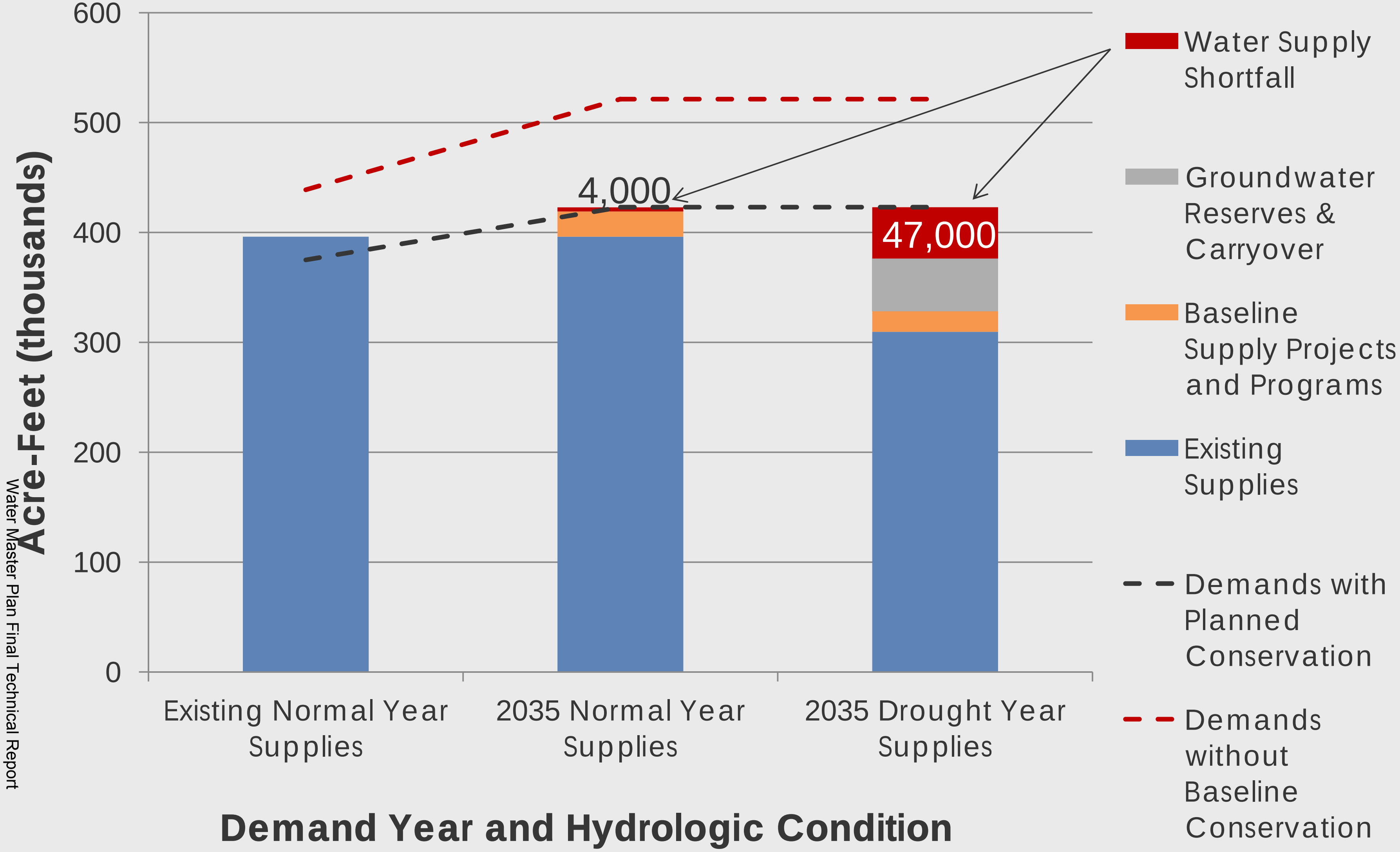
- Surplus water is stored in wet years for use in dry years
- Local supply is insufficient to meet demands
- Recycled water is reliable in all years



The Water Master Plan will build on existing and planned projects and programs

- Achieve 98,500 acre-feet of annual long-term conservation savings by 2035
- Work with recycled water producers and retailers to achieve 29,000 acre-feet of annual non-potable water recycling by 2035
- Maintain San Francisco Public Utilities Commission supplies of almost 64,000 acre-feet per year
- Complete Anderson Dam Seismic Retrofit before 2020
- Complete Main and Madrone Pipelines Restoration by 2015
- Protect local water rights by implementing the Three Creeks Habitat Conservation Plan
- Improve ability to meet flow requirements at Rinconada Water Treatment Plant

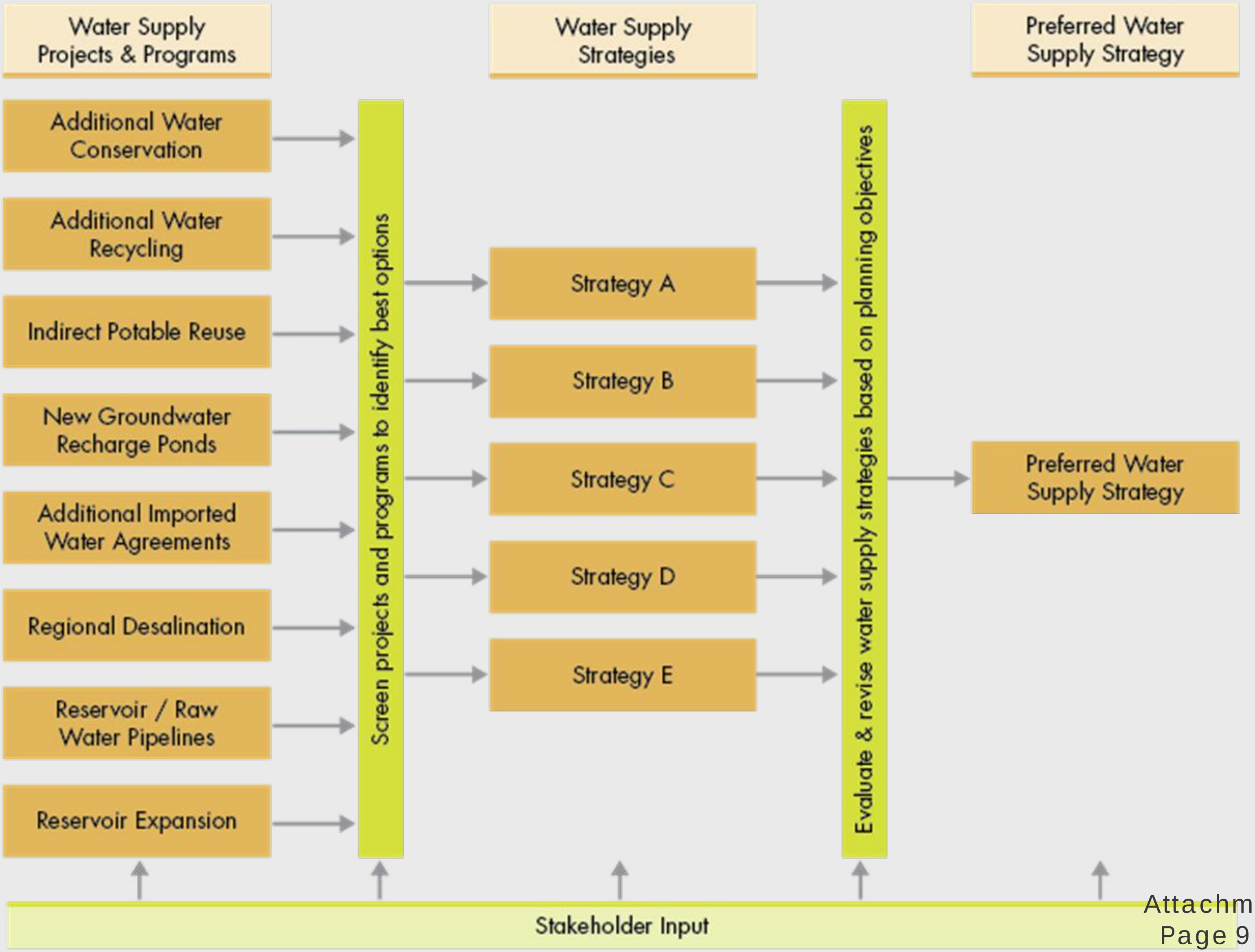
Additional supplies are needed to fill future water supply shortfalls



Planning objectives are foundation of project and strategy evaluation

Planning Objectives	Board Policy
Ensure Water Supply Reliability	E-2.1: Current and future water supply for municipalities, industries, agriculture and the environment is reliable
Ensure Drinking Water Quality	E-2.1.1: Aggressively protect groundwater basins from contamination… E-2.3: Reliable high quality drinking water is delivered
Minimize Cost Impacts	EL-5.4: A BAO shall not spend extravagantly, inefficiently, or in ways more costly than necessary
Maximize Implementation Potential	E-1.2: Engagement with federal, state, regional and local agencies, water retailers, and the community is necessary
Maximize Water Conservation	E-2.1.6: Maximize water use efficiency, water conservation and demand management opportunities
Protect the Natural Environment	E-4.1: Healthy creek, bay and other aquatic ecosystems E-4.2: Clean, safe water in creeks and bays E-4.3.2: Reduce greenhouse gas emissions when reasonable and appropriate
Ensure Community Benefits	EL-2: With respect to interactions with consumers… the BAOs shall not cause or allow conditions…which fail to fulfill reasonable consumer expectations for good service… E-3.2: Reduced potential for flood damages E-4.3.1: Support additional trails, parks, and open space along creeks and in the watersheds when reasonable and appropriate

Developing water supply strategies for meeting future needs is a three step process



Water Supply Projects & Programs

- Additional Water Conservation
- Additional Water Recycling
- Indirect Potable Reuse
- New Groundwater Recharge Ponds
- Additional Imported Water Agreements
- Regional Desalination
- Reservoir / Raw Water Pipelines
- Reservoir Expansion

Screen projects and programs to identify best options

Water Supply Strategies

- Strategy A
- Strategy B
- Strategy C
- Strategy D
- Strategy E

Evaluate & revise water supply strategies based on planning objectives

Preferred Water Supply Strategy

- Preferred Water Supply Strategy

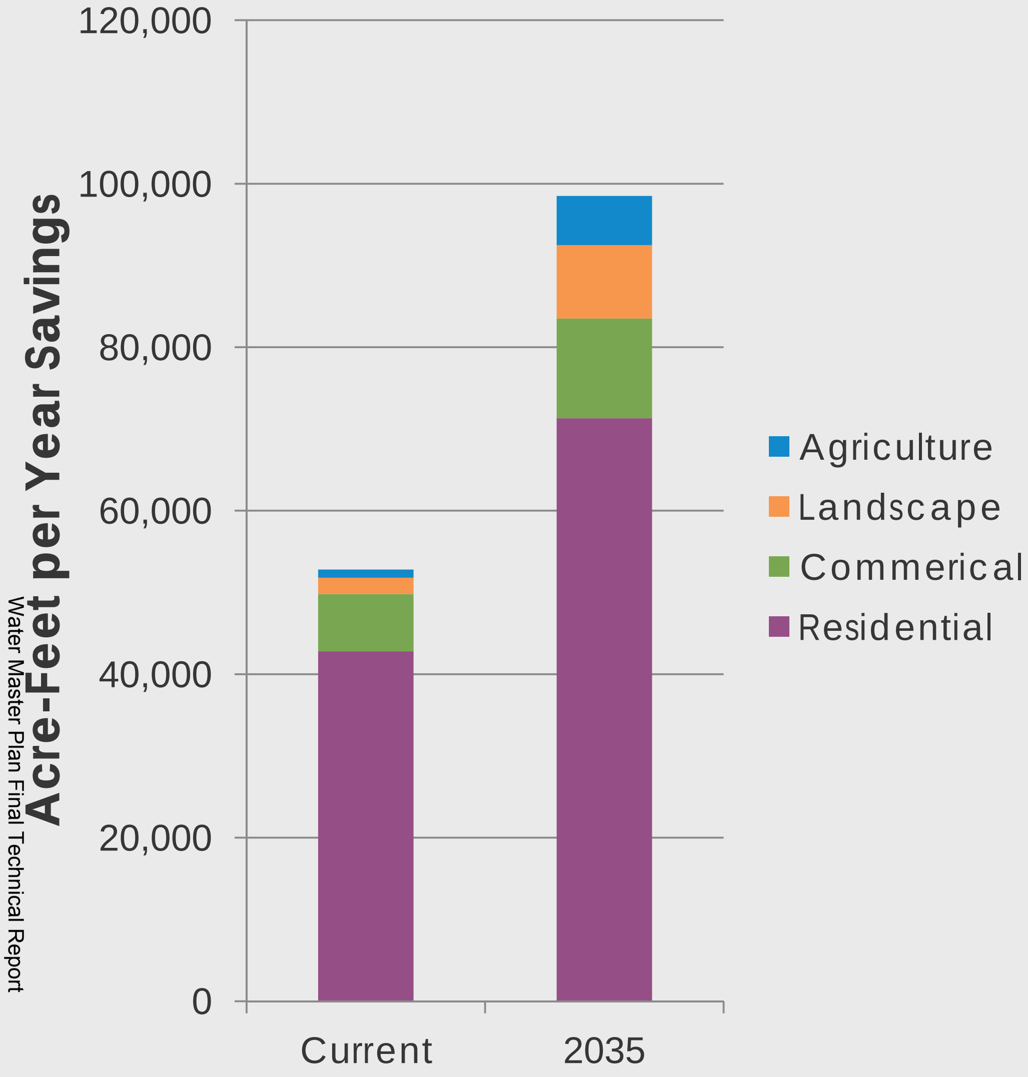
Stakeholder Input

Developed projects and programs to meet future water supply needs

Project Type	Estimated Average Annual Yield (acre-feet)	Estimated Cost per Acre-Foot
Baseline	423,000	$500
1. Additional Conservation	300	$300
2. Additional Non-Potable Recycling	240 - 700	$150 - $550
3. Indirect Potable Reuse	3,000 – 20,000	$450 - $750
4. New Groundwater Recharge Ponds	2,000 – 8,000	$50 - $150
5. Additional Imported Water Agreements	0 – 30,000	$50 - $500
6. Regional Desalination	2,000	$1,000
7. Pipelines Between Reservoirs and the Raw Water System	900 – 3,000	$200
8. Reservoir Expansion (5,000 – 100,000 acre-feet)	150 – 15,000	$500

1. Additional Water Conservation

300 acre-feet per year in addition to 98,500 acre-feet per achieved as part of the Core Elements

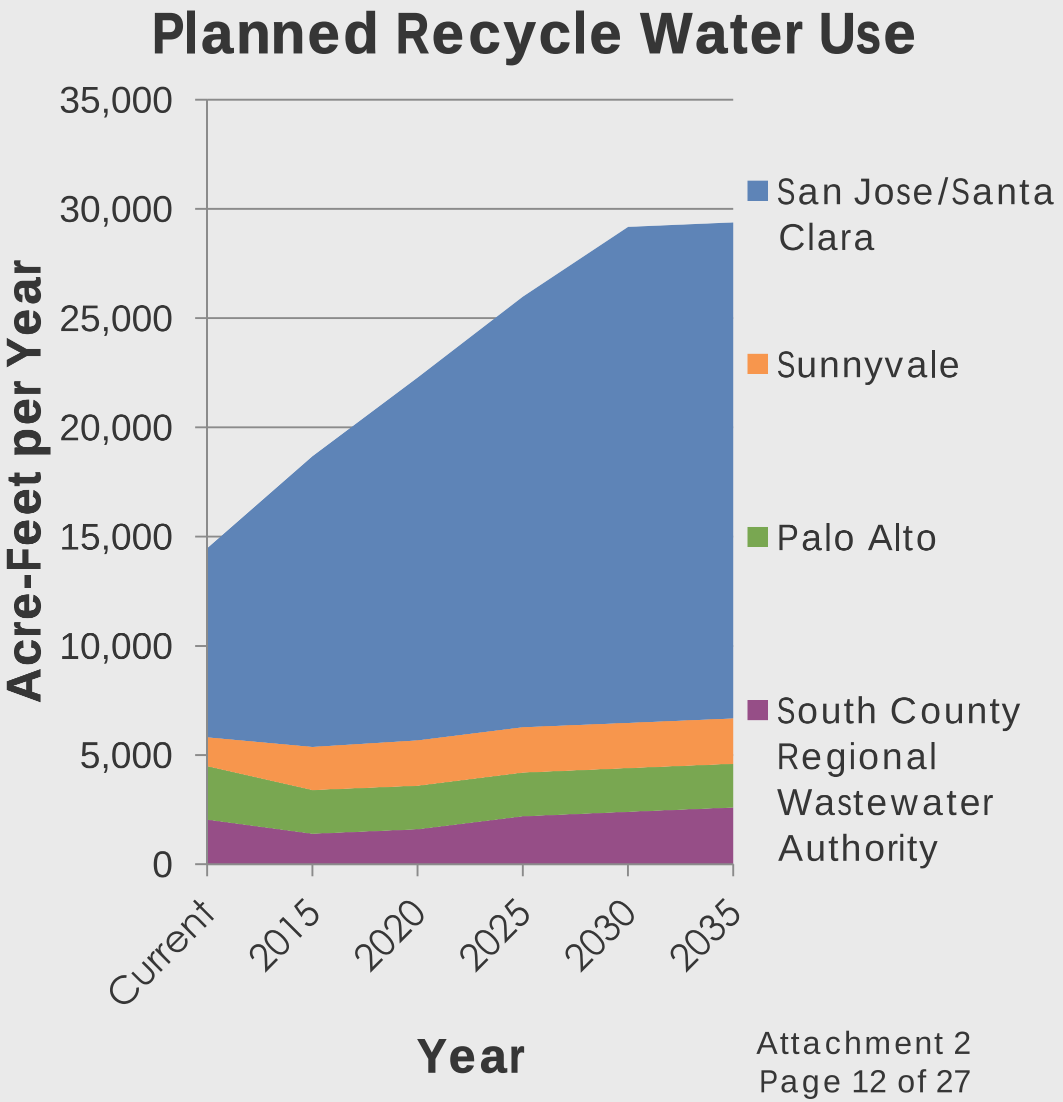


- Gray water use is currently feasible(300 acre-feet per year)
- Will continue to evaluate new conservation opportunities
- Conservation savings included in core elements
- Strong working relationship with retailers

2. Additional Non-Potable Recycling

240 - 700 acre-feet per year in additional to 29,000 acre-feet achieved as part of the Core Elements

- Regional connectors and pipeline extensions
- Local and regional recycled water master plans underway
- Regional partnerships and collaboration



3. Indirect Potable Reuse

3,000 – 20,000 acre-feet per year

- New local supply
- All-weather supply
- Builds on existing partnerships and systems
- High cost for treatment and conveyance
- Requires public and regulatory acceptance

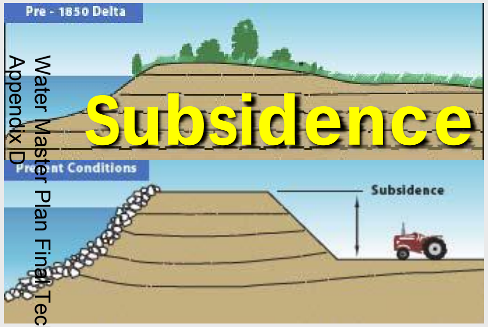
4. New Groundwater Recharge Ponds

2,000 – 8,000 acre-feet per year

- Better when combined with other projects that include new supply development
- Potential locations in Guadalupe, West Valley, and Llagas watersheds
- Benefits groundwater quantity and quality
- More efficient use of existing supplies
- Relatively low cost

5. Imported Water Agreements

Up to 30,000 acre-feet per year



- Includes new contracts, dry year transfer options, and exchanges
- Provides dry year supplies to meet potable needs
- Subject to pumping restrictions and outages in Delta facilities
- Efforts underway to restore imported water reliability

6. Regional Desalination

2,000 acre-feet per year

- Transfer water in dry years
- Regional partnerships
- Pilot testing completed in 2010
- Technical studies underway
- Highest per unit cost of water

7. Pipelines between Reservoirs and Raw Water System

900 – 3,000 acre-feet per year

- Connects additional reservoirs to the raw water system
- Uses wet weather flows to help maintain water supply reserves
- Builds on existing water supply system

8. Reservoir Expansion

Up to 15,000 acre-feet per year

- Storage is good for managing risks such as imported water outages and climate change
- Additional recreation benefits
- Potential adverse environmental impacts

Water supply strategies are combinations of projects to meet future water needs

Strategies meet reliability goal to avoid calls for short-term water use reductions greater than 20 percent

Water Supply Strategy	Estimated Present Value Cost	Risk Factors
1. Local Supply Development (Indirect Potable Reuse)	$600M - $700M	•Public and regulatory acceptance
2. System Flexibility (Reservoir Expansion & Pipelines)	$400M - $600M	•Public and regulatory acceptance •Supplemental supplies may be subject to outages
5. Minimize Costs (Dry Year Options)	$100M	•Subject to Delta outages and pumping restrictions

Strategy: Local Supply Development

Estimated Present Value Cost = $600M - $700M

Includes advanced treatment of recycled water, conveyance pipelines, and groundwater recharge

- Provides a local supply that is reliable in all types of year
- Builds on existing facilities
- Helps maintain reservoir supplies for meeting fishery needs
- Reduces freshwater flows to saltwater habitat in South San Francisco Bay
- Public outreach and regulatory acceptance critical to successful implementation

Reverse Osmosis Treatment

New Pipelines

Alamitos Groundwater Recharge Ponds
Santa Clara Valley Water District

Groundwater Recharge

Strategy: System Flexibility

Estimated Present Value Cost = $400 M - $600 M

New Pipelines

Reservoirs

Imported Water

Includes new pipelines and reservoir expansion or retrofits

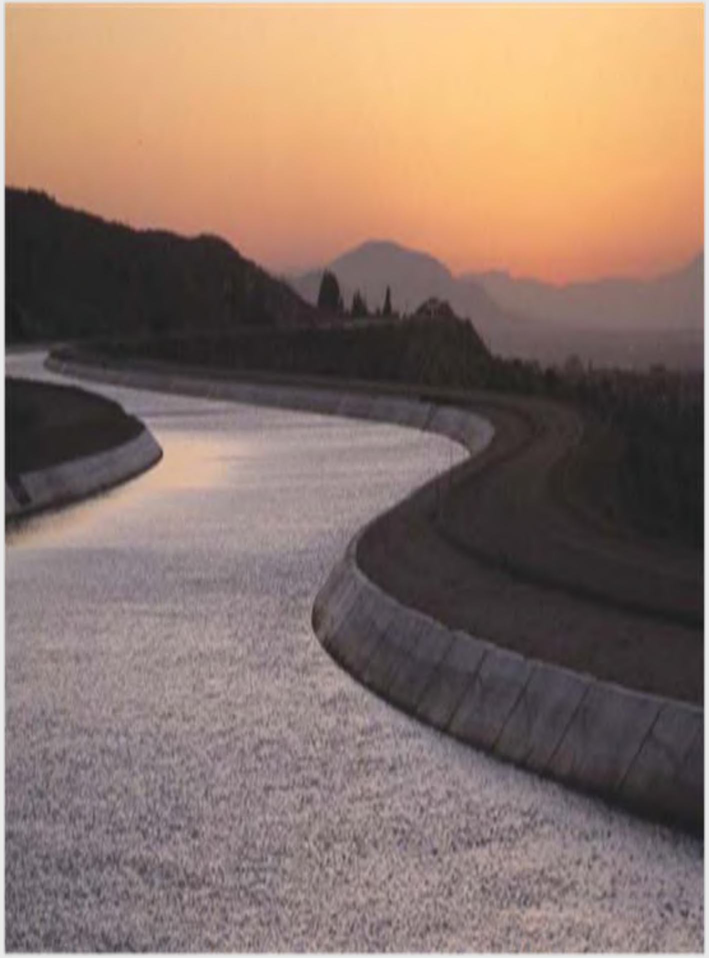
- Puts high flows to use or into storage
- Increases recreation opportunities
- Storage is good for managing risks such as imported water outages and climate change
- Multiple environmental impacts (habitat, roads, etc)
- Requires supplemental drought supplies

Strategy: Low Cost

Estimated Present Value Cost = $100M

Options include dry year option agreements, 2:1 exchange agreements, new contract supplies, and participation in a regional desalination project

- Develops supplies for when they are most needed
- Supplies from the Delta are subject to infrastructure failure and/or regulatory restrictions
- Regional desalination project is more reliable, but more costly



Imported Water

Stakeholder committee meets at least quarterly

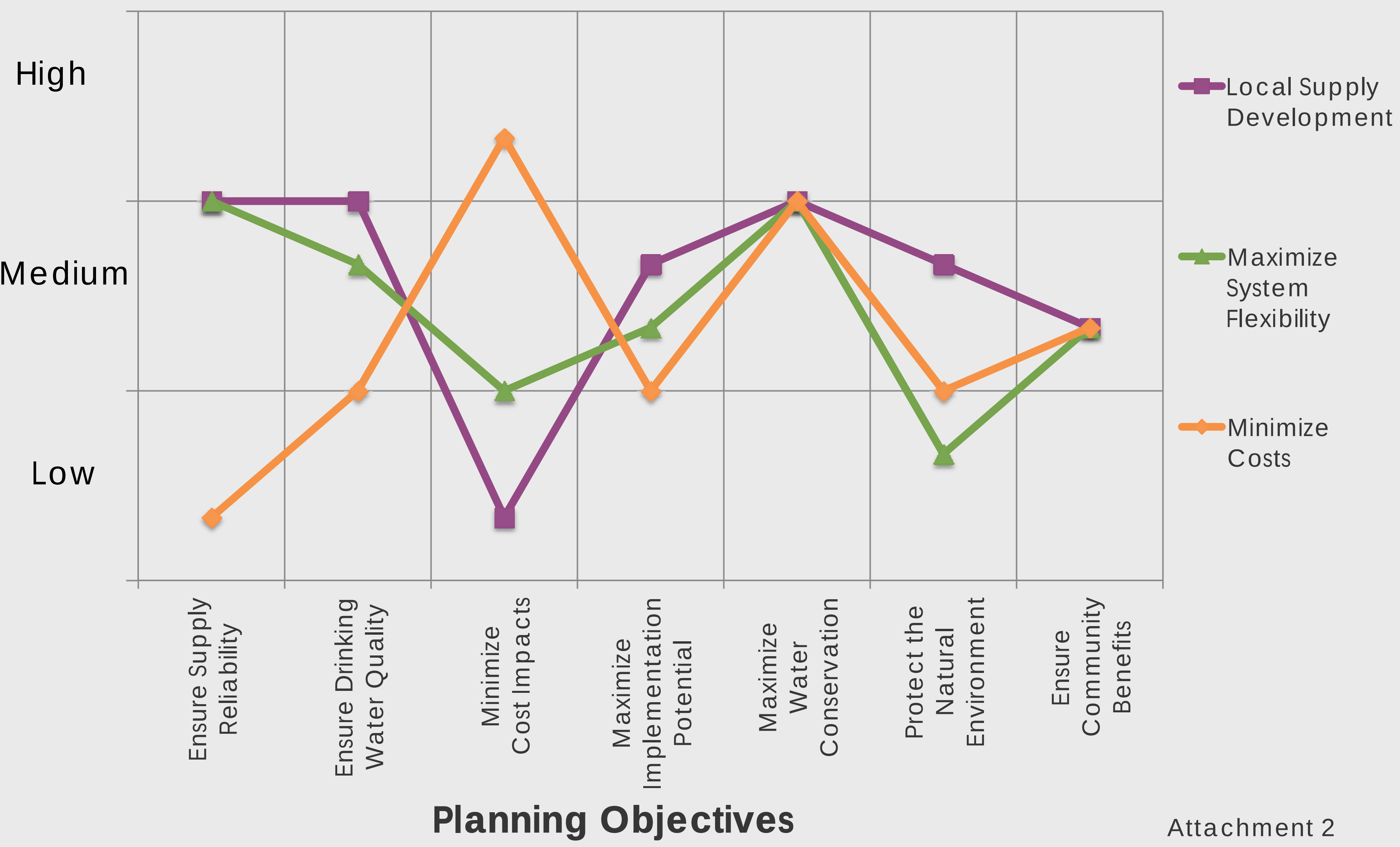
Approximately 14 regular participants in the stakeholder committee

- Business and Industry
  - Santa Clara County Farm Bureau
  - Building Industry Association of Bay Area
  - Silicon Valley Leadership Group
- Cities
  - Milpitas
  - Morgan Hill
  - Palo Alto
  - San Jose
  - Santa Clara
- Environmental and Community Advocates
  - Clean South Bay
  - Santa Clara Valley Audubon Society
  - United Neighborhoods of Santa Clara County
  - League of Women Voters
- Wastewater Agencies
- Water Retailers and Wholesalers

Stakeholders have provided valuable input

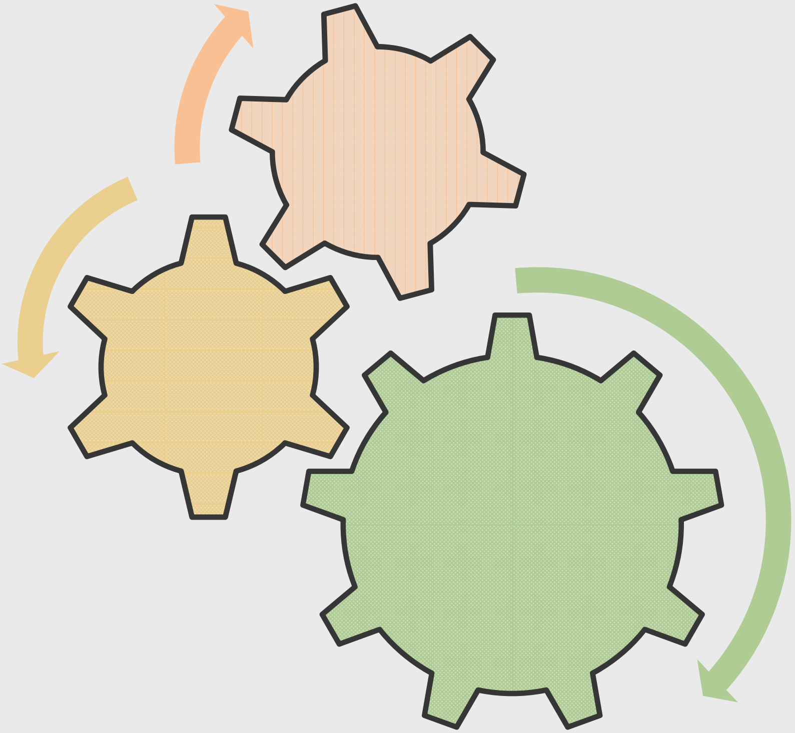
- Maintain water supply reliability
- Plan for population increases and climate change
- Continue an aggressive level of water conservation programs
- Evaluate regional recycled water projects
- Consider indirect potable reuse projects
- Be aware of concerns about local reservoir expansion
- Investigate regional projects such as Los Vaqueros Reservoir Expansion
- Address concerns about the reliability of imported supplies from the Delta

Stakeholders rated the three strategies on meeting the various planning objectives



Multiple factors will be considered when developing a preferred water supply strategy

- Board and stakeholder input
- Water supply yield
- Benefit-cost analysis



Questions?

Santa Clara Valley Water District

FC 1025 (08/17/11)

Meeting Date: 5/15/12
Agenda Item: 4.4
Unclassified Manager: F. Maitski
Extension: 2284
Director(s): All

BOARD AGENDA MEMO

SUBJECT: 2012 Water Supply and Infrastructure Master Plan - Recommended Water Supply Strategy

RECOMMENDATION:

A. Receive staff's update on development of the Water Supply and Infrastructure Master Plan.

B. Accept the staff recommended water supply strategy for meeting future increases in water demand by securing baseline supplies and infrastructure, increasing water conservation, developing indirect potable reuse, constructing additional groundwater recharge capacity, maximizing the economic value of Semitropic Groundwater Bank, and using dry year imported water options on an as needed basis.

C. Discuss the proposed CEO Interpretation of Board Policy E-2.1 that would establish a level of service goal to limit calls for short-term water use reductions to no more than 10 percent.

SUMMARY:

The 2012 Water Supply and Infrastructure Master Plan (Water Master Plan) supports Board Governance Policy E-2.1, which states "current and future water supply for municipalities, industries, agriculture, and the environment is reliable." The purpose of the Water Master Plan is to identify the supplies, infrastructure, and operational approaches needed to achieve long-term water supply reliability. Staff presented the Board with a range of water supply strategies for meeting future water supply needs on December 13, 2011, and received direction to develop a recommended strategy for meeting future water supply needs. This item presents analysis of future water supplies and demands, a range of components of the recommended strategy for meeting future demands, benefits and costs associated with the recommended strategy, and how the recommended strategy will be phased in over time. During the planning process, the stakeholders requested that the costs and benefits of different levels of reliability, or different level of service goals, be evaluated in conjunction with water supply strategies. Staff is requesting the Board review and accept the recommended water supply strategy at the proposed level of service goal so that staff can proceed with finalizing the Water Master Plan.

1. Existing Water Supplies, With Secured Baseline Supplies, Are Sufficient to Meet Normal Year Demands Through 2030

The Water Master Plan evaluates current supplies and the baseline water supply system against projected water demands through Year 2035. Water supplies are sufficient to meet normal year demands through 2030 with planned increases in water conservation savings described below. In 2035, water demands are projected to exceed water supplies in normal years by about 4,000 AFY, or one percent of the projected demand.

The baseline water supply system delivers the current water supplies and includes facilities to manage groundwater, local runoff, imported water through the Central Valley Project and the State Water Project, imported water delivered by the San Francisco Public Utilities Commission, and recycled water. The amount of total water supply varies greatly from year to year, based primarily on precipitation levels. In years where water supplies exceed water demands, the District is able to store surplus water in local groundwater basins, the Semitropic Water Bank, or local and statewide surface water reservoirs for later use. In dry years, the District draws on this surplus water to meet local water demands.

Santa Clara County is expected to continue to grow. Based on Association of Bay Area Governments 2009 projections, population in Santa Clara County is expected to increase 33 percent from 1.8 million in 2010 to about 2.4 million in 2035; the number of jobs is expected to increase by 56 percent from about 900,000 to over 1.4 million. Increased population and jobs will fuel water demands from today's 330,000 acre-feet per year (AFY) to about 423,000 AFY in 2035[1]. The 2035 demand projection would be 520,000 AFY, if it did not include projected water conservation program savings of 98,500 AFY. At present, annual water conservation savings are estimated to total a little more than half this amount (52,500 AF in 2010). Continued implementation of the District's ongoing water conservation programs is very important to keep the growth of annual water conservation savings on track. These conservation programs are therefore an important part of the baseline water supply system.

2. Future Multi-Year Droughts Are the Primary Water Supply Challenge

The outlook for extended, multi-year droughts is of greater concern for providing a reliable water supply. Water supply shortfalls are estimated to average about 47,000 AFY in drought conditions by 2035, and could be as high as 120,000 AFY in a single year of a severe drought period. Without new supplies, short-term water use reductions up to 50 percent could be required during a drought. Water use reductions above 20 percent[2] could be necessary as early as 2025.

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[1] Current water use is the estimated water use for 2011 from the 2012 Protection and Augmentation of Water Supplies report. Year 2035 protected water demand is from the 2010 Urban Water Management Plan (UWMP).

3. A Secure Baseline and New Dry Year Supplies Needed to Meet Future Water Needs
The analysis shows that first and foremost the District will need to rely upon its baseline water supply system as baseline supplies and infrastructure continue to support future normal precipitation year needs. On average, these baseline facilities provide for almost 90 percent of drought year needs. Critical baseline investments that ensure future water supply reliability include:

- seismic retrofit of dams and treatment plants;
- maintaining existing water utility assets, such as pipelines and recharge ponds;
- securing existing local water rights;
- continuing to build annual conservation savings;
- continuing to expand non-potable water recycling; and
- participation in a Bay Delta solution to sustain existing imported supplies.

The District's draft 2013 – 2017 Five-Year Capital Improvement Program (CIP) identifies more than $450 million in investments needed to secure the baseline water supply system over the next 10 years. In addition, the 2013 – 2017 Water Utility Enterprise Operations Plan projects an average of $15 million per year in ongoing maintenance activities, $2 million per year to support non-potable recycled water expansion, and $6 million for ongoing conservation programs. This translates to an annual budget for capital and operations of $197 million for FY 2011-12 that is estimated to increase to an estimated $300 million by FY 2022[3] as the District moves forward with dam seismic retrofits and other projects and operational programs that secure the baseline water supply system. This estimate does not include certain future capital costs that are not well-defined at this time, including complete seismic retrofitting costs for all dams, and the District's share of implementing a long-term Bay-Delta solution.

Additional investments will also be necessary to meet future increases in water demands. While future shortfalls in supply are expected to be very small in normal years, shortfalls during extended droughts could be significant. Staff identified and evaluated a variety of new projects and programs to meet future water supply needs and to manage risks.[4] These projects and programs include additional water conservation, additional recycled water, indirect potable reuse (using advanced treated purified water for groundwater recharge), additional groundwater recharge ponds, reservoir expansion, desalination, and imported water transfers. Staff developed planning objectives[5] based on Board policy to evaluate these projects.

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[2] The District's Water Shortage Contingency Plan, which is part of the District's Board-adopted 2010 Urban Water Management Plan, is designed to avoid having to call for more than a 20 percent reduction in water use in any given year of an extended drought. Avoiding calls for short-term demand reductions is a planning constraint for the Water Master Plan. This reduction in water use is a short-term reduction and is in addition to long-term water conservation savings.

[3] 2012-2013 Protection and Augmentation of Water Supply Report

[4] Risks include climate change, imported water interruptions, regulatory restrictions, increases in environmental water demands, policy changes, reduction in San Francisco Public Utilities Commission deliveries to local retailers, inaccurate demand projections, and water quality issues.

Projects and programs were combined into different water supply strategies. Each strategy was evaluated for water supply yield, cost, and the ability to meet planning objectives and respond to risks. Three strategies - Minimize Costs, Maximize Flexibility, and Develop Local Supplies - were presented to the Board on December 13, 2011 and are described in Attachment 1. Since the December 13, 2011 Board meeting, staff worked with stakeholders and developed the recommended strategy discussed below. Attachment 2 shows how the three strategies and the recommended strategy discussed below were scored against the planning objectives. The lowest cost strategy (Minimize Costs) was perceived as providing the least benefits and having the most risk, because it relies primarily on imported water supplies that are currently subject to Delta conveyance risks. The higher cost strategies (Develop Local Supplies and staff's recommended Ensure Sustainability Strategy) were perceived as providing the most benefits and being subject to fewer risks.

4. Staff Recommended Strategy: Ensure Sustainability

Staff recommends that the Board accept the recommended Ensure Sustainability Strategy. This builds on the Develop Local Supplies strategy previously presented to the Board. The strategy includes:

- securing baseline water supply system,
- developing at least 20,000 acre-feet per year of indirect potable reuse, or groundwater recharge with advanced treated purified water, to meet future water supply needs,
- new groundwater recharge ponds with a total yield of 3,000 acre-feet per year, and
- imported water reoperations to sell up to 50,000 acre-feet per year of water when Semitropic Groundwater Bank storage levels are near full and District water supply needs are otherwise met, and
- Implementing a gray water reuse rebate program that would result in approximately 300 acre-feet per year of long-term conservation savings.

The key benefits of this strategy are that it develops a new local drought-proof supply and allows the District to meet the planning objective of limiting short-term water use reductions to 20 percent or less, without requiring acquisition of supplemental droughts supplies. The strategy builds on existing agreements with City of San Jose and South Bay Water Recycling to develop indirect potable reuse. Indirect potable reuse could provide a new local supply for recharge, which would help maintain reservoir supplies that are used to meet flow and temperature requirements for fish in local creeks. Indirect potable reuse would also reduce discharges to

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[5] The planning objectives, which were presented to the Board on January 25, 2011, are 1) ensure water supply reliability, 2) ensure drinking water quality, 3) minimize cost impacts, 4) maximize implementation potential, 5) maximize water conservation, 6) protect the natural environment, and 7) ensure community benefits.

South San Francisco Bay from the wastewater treatment plants. In addition, the strategy provides additional groundwater quality benefits in that advanced treatment removes nearly all the salts from the water that is used for recharge, resulting in high quality water being recharged into the groundwater basin. Additional groundwater recharge ponds provide additional capacity to process wet-weather flows and help maintain groundwater levels, both of which helps manage risks due to climate change and supply interruptions.

The recommended strategy includes imported water reoperations. Indirect potable reuse provides supply in every year, while the District's future shortages are primarily in extended droughts. Imported water reoperations would maximize the economic value of existing assets (imported water contracts and investment in the Semitropic Groundwater Bank) and help fund investments into infrastructure and additional local supplies. Reoperations would also help create sufficient space in the Semitropic Groundwater Bank for carryover of supplies during wetter years. These objectives could also be accomplished by establishing one or more long-term partnerships to share the District's imported water resources.

Implementing the recommended strategy would reduce reliance on imported water supplies and increase water reuse. Attachment 3 illustrates how the District water supply mix would change over time. The mix of countywide supplies and long-term conservation savings would change between now and 2035 as follows:

- Conservation savings would increase from about 12 percent to about 18 percent,
- Water reuse (recycling and indirect potable reuse) would increase from about three percent to eight percent,
- Local water supplies (including groundwater and surface water) would decrease from about 34 percent to 31 percent as the total amount of supply increases and the amount of local supply remains the same, and
- Imported water supplies, including SFPUC deliveries, would decrease from about 51 percent to 42 percent.

One of the concerns with the recommended strategy is the need to develop public and regulatory support prior to implementing indirect potable reuse. Its higher cost is also a concern. The table below compares the costs of the recommended Ensure Sustainability Strategy and the Minimize Costs Strategy. The total costs for the Ensure Sustainability Strategy are higher than the Minimize Costs Strategy. It should be noted that the costs do not include the costs of securing our baseline supplies.

Strategy	Planning Level Estimated Present Value Cost	Planning Level Estimated Average Annual Equivalent	Planning Level Estimated Cost per Acre-Foot
Recommended Strategy – Ensure Sustainability	$300 million	$12 million	$300 per acre-foot
Minimize Costs Strategy	$75 million	$3 million	$250 per acre-foot

Staff is recommending the Ensure Sustainability strategy because it:

- Best satisfies the Water Master Plan planning objectives.
- Develops local supplies consistent with State policy to reduce reliance on the Delta.
- Manages risks better than lower cost strategies that rely more exclusively on imported water. The new local drought-proof supply would be available regardless of climate change impacts on rainfall and runoff, outages in the Delta, and regulatory or policy decisions that affect local surface and imported water supplies.
- Provides a higher level of reliability than reservoir expansion. Reservoir expansion provides minimal dry year benefits and needs to be supplemented with dry year supplies, such as imported water transfers or advanced treated recycled water supplies. In future Water Master Plan updates, the District should continue to evaluate reservoir expansion as an adaptation measure for local climate change impacts.

5. Proposed Level of Service Goal to Limit Calls for Short-Term Water Use Reductions

Staff recommends that the Board consider the proposed CEO Interpretation of Board Policy E-2.1 that would establish a level of service goal to limit calls for short-term water use reductions to no more than 10 percent. Currently, neither Board Policy nor CEO Interpretations include a level of service goal for water supply reliability. The level of service goal is proposed for several reasons. First, stakeholders have expressed a desire to avoid or minimize calls for short-term water use reductions, especially mandatory water use reductions. Typically, calls for short-term water use reductions up to 10 percent are considered voluntary while reductions beyond 10 percent are considered mandatory. Second, limiting calls for short-term water use reductions helps stabilize revenues and manage water rates. Third, the present value cost of achieving this improved level of reliability through adding imported water dry year options to the recommended strategy is approximately $50 million. This cost of providing this level of reliability is consistent with cost of shortage evaluations completed for other Bay Area water agencies. Lastly, the recommended level of service would be achieved through imported water dry year options or spot-market transfers, which is the existing District operating strategy. Staff anticipates that such purchases would be required about two percent of the time under a 2035 level of demand and would not significantly change the percent of imported water supplies in the county's water supply mix. Again, with the Ensure Sustainability Strategy, imported water supplies would decrease from about 51 percent today to about 42 percent in 2035.

(5/15/12)

6. Phased Approach Towards Implementing the Recommended Water Supply Strategy and Level of Service

Staff anticipates that the recommended water supply strategy would be phased in to minimize risks associated with the need to develop public support and developing regulations, allow time for new technologies to be developed that could reduce energy use and/or brine generation, and secure funding for implementation. Key implementation elements and timing are discussed below and summarized in Attachment 3.

> *Phase 1 - 2012 to 2016:* The focus would be on maintaining and upgrading the baseline system, and further clarification of total baseline system costs including all necessary seismic work and participation in a long-term Bay-Delta solution. Existing water supplies are projected to be sufficient to meet needs during normal and drought years during Phase 1. The District would work on developing public and regulatory support for indirect potable reuse and begin testing treatment effectiveness when the Silicon Valley Advanced Water Purification Center is operational. The District would also monitor key activities and decisions that could affect baseline water supply system conditions and planning assumptions. These activities and decisions include:

- Changes in long-term water demand projections.
- The level of District participation in implementing the Bay Delta Conservation Plan. This could affect assumptions regarding baseline imported water supplies.
- State Water Resources Control Board approval of settlement agreement associated with the Fisheries and Aquatic Habitat Collaborative Effort (FAHCE) and Three Creeks Habitat Conservation Plan.
- State Department of Public Health final regulations for indirect potable reuse.
- Updates to recycled water master plans and implementation by various recycled water producers.
- Development of groundwater protection guidelines for the use of gray water.
- Acquire any necessary approvals for imported water reoperations.
- Regulatory and judicial decisions that could impacts the District's imported water supplies.

The information gained during this time will be used to validate the recommended water supply strategy and update the Water Master Plan. Water Master Plan updates are scheduled to occur on a 5-year cycle, following updates of the Urban Water Management Plan that are required in years ending in zero and five. The Urban Water Management Plan contains water supply and demand projections that provide the basis for updating the Water Master Plan.

Phase 2 - 2017 to 2021: Assuming the recommended water supply strategy is validated in the 2016 Water Master Plan Update, the District will need to complete planning for indirect potable reuse, complete planning for additional groundwater recharge ponds, begin implementing imported water reoperations, begin implementing a gray water reuse rebate program, and secure approximately 8,000 acre-feet in dry year imported water options.

Phase 3 - 2022 to 2026: The District will need to complete the design of an indirect potable reuse system, complete the design and construction of additional groundwater recharge ponds, and secure approximately 15,000 acre-feet of dry year water imported options.

Phase 4 - 2027 to 2031: The District will need to complete construction of an indirect potable reuse system based on the results of planning studies and future Board decisions. The District should also secure approximately 23,000 acre-feet of dry year imported water options.

Phase 5 - After 2031: The recommended water supply strategy will be fully implemented. The baseline supplies and new supplies should be sufficient to meet needs during normal years and avoid calls for short-term water use reductions greater than 20 percent during droughts. A combination of indirect potable reuse (about 20,000 acre-feet per year), additional groundwater recharge ponds (about 3,000 acre-feet per year), gray water reuse (about 300 acre-feet per year), and dry year imported water options (up to 15,000 acre-feet per year) are expected to satisfy water demands.

Stakeholder Input

District staff has been working with the Stakeholder Review Committee to obtain input and advice on the Water Master Plan since May 2010. Regular committee participants include representatives from the Santa Clara County Farm Bureau, Silicon Valley Leadership Group, City of Milpitas, City of Morgan Hill, City of Palo Alto, City of San Jose, City of Santa Clara, Santa Clara Basin Watershed Management Initiative, Santa Clara Valley Audubon Society, United Neighborhoods of Santa Clara County, League of Women Voters, and San Jose Water Company. Staff discussed the recommended strategy and level of service goal with the Stakeholder Review Committee in December 2011. The committee members present at that time concurred with the recommended strategy and level of service goal. Staff is also scheduled to present the recommendation strategy and level of service goal to several Board Advisory Committees in early April 2012. Advisory Committee input will be presented to the Board verbally.

Next Steps

The next step in the planning process is to complete the Water Master Plan report. The report will present a description of the current water supply system, the long-term water supply outlook, the planning objectives, the projects and strategies that were considered for the Water Master Plan, a benefit/cost analysis, the preferred water supply strategy, a long-term reliability level of service goal, and the implementation plan. Staff plans to present the report to the Board in August 2012 for consideration and acceptance.

FINANCIAL IMPACT:

There is no financial impact associated with this item as the Board is not being asked to approve funding for new activities at this time. However, implementing the recommended strategy and level of service goal would require approximately $350 million over the 25-year planning horizon, or approximately $14 million per year once it is fully implemented, in addition to the costs of securing the baseline water supply system. Over the next 10 years, Water Master Plan implementation will focus on securing the baseline and setting the stage for making decisions on indirect potable reuse.

CEQA:

Possible future actions which the Board has not yet approved, adopted, or funded are not subject to CEQA. This item is not requesting the Board to approve, adopt, or fund any actions.

ATTACHMENTS:

Attachment 1: Summary of Water Supply Strategies
Attachment 2: Water Supply Strategy Ratings
Attachment 3: Water Supply Mix
Attachment 4: Implementation Approach
Attachment 5: PowerPoint Presentation

Summary of Water Supply Strategies

Water Supply Strategy	Key Projects Included[1]	Planning Level Estimated Present Value Cost	Benefits	Risks/Challenges
Minimize Costs	• Imported Water Dry Year Options (up to 30,000 acre-feet delivered during water shortages)	$75 Million	• Develops 30,000 acre-feet per year (AFY) of drought supply • Avoids stranded assets	• Inconsistent with State policy to reduce reliance on the Delta • No local supply development to • Need to resolve Delta issues • Outages in the Delta could disrupt supplies
Maximize System Flexibility	• Calero Reservoir Expansion • Pipelines Connecting Uvas Reservoir and Stevens Creek Reservoir to the Raw Water System • Imported Water Dry Year Options (up to 30,000 acre-feet delivered during water shortages)	$250 Million	• Mitigates short-term and long-term risks risks by increasing storage and adding redundancy and interconnectedness to the system • Potential increases in recreation benefits	• Little new local supply during droughts • Requires supplemental dry year supplies • Public acceptance and permitting • Environmental impacts, including habitat and transportation infrastructure
Develop Local Supplies	• Indirect Potable Reuse • New Groundwater Recharge Ponds	$375 Million	• Develops about 20,000 AFY of local, all-weather supply • Improves groundwater quality by using higher quality water for recharge • Maximizes District influence over supplies and operations since the water would be available for use regardless of weather • Helps maintain water supplies in reservoirs that can be used to meet fishery requirements for cold water flows • Reduces fresh water flows to saltwater habitat in southern San Francisco Bay • Builds on existing agreements	• Public and regulatory acceptance is critical to successful implementation • Potential for stranded assets • Increases the energy intensity of the District's water supply portfolio
Staff Recommendation – Ensure Sustainability	• Indirect Potable Reuse • New Groundwater Recharge Ponds • Imported Water Reoperations	$300 Million	• Develops about 20,000 AFY of local, all-weather supply • Improves groundwater quality by using higher quality water for recharge • Maximizes District influence over supplies and operations since the water would be available for use regardless of weather • Helps maintain water supplies in reservoirs that can be used to meet fishery requirements for cold water flows • Reduces discharges to southern San Francisco Bay • Builds on existing agreements • Maximizes the economic value of existing assets to offset other costs	• Public and regulatory acceptance is critical to successful implementation • Potential for stranded assets • Increases the energy intensity of the District's water supply portfolio

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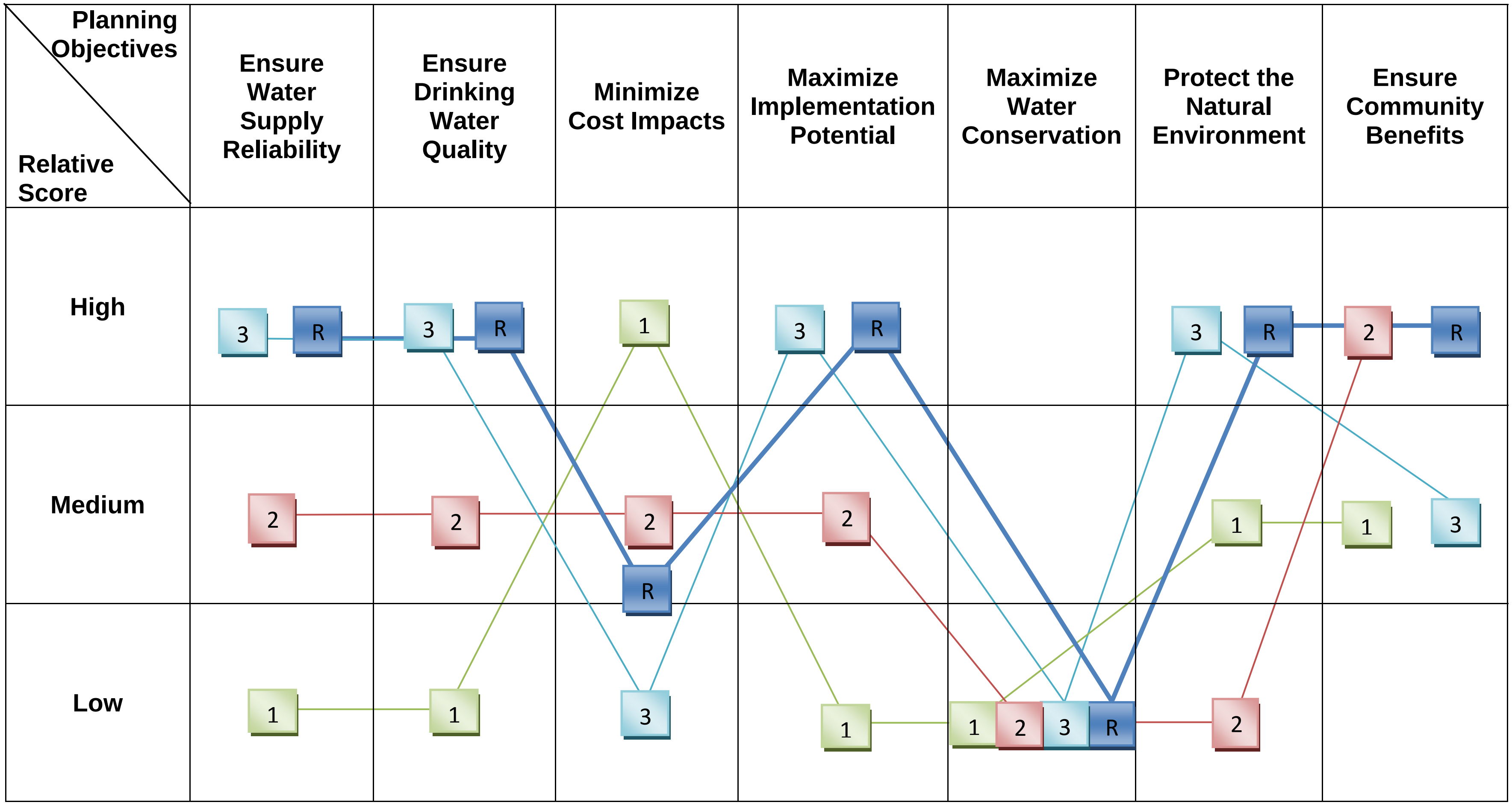
[1] A gray water reuse rebate program is included in all the strategies.



Planning Objectives / Relative Score	Ensure Water Supply Reliability	Ensure Drinking Water Quality	Minimize Cost Impacts	Maximize Implementation Potential	Maximize Water Conservation	Protect the Natural Environment	Ensure Community Benefits
High	3 R	3 R	1	3 R		3 R	2 R
Medium	2	2	2 R	2		1	1 3
Low	1	1	3	1	1 2 3 R	2	

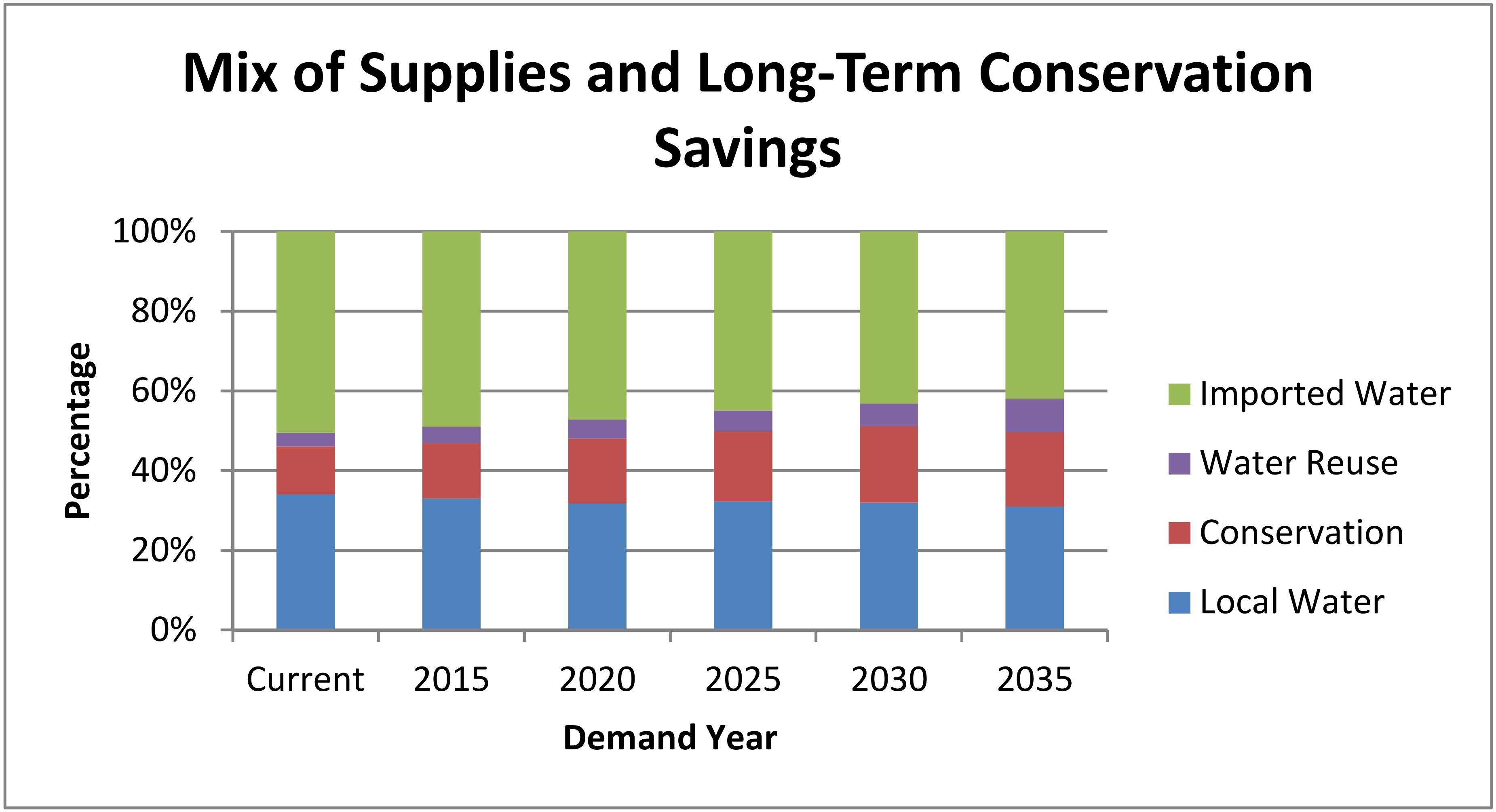
1 Minimize Costs Strategy

2 Maximize System Flexibility Strategy

3 Local Supply Development Strategy

R Recommended Strategy – Ensure Sustainability

Attachment 2, Page 1 of 1



Mix of Supplies and Long-Term Conservation Savings

Implementation Approach for Recommended Ensure Sustainability Strategy

Strategic Elements	Phase 1: 2012 – 2016	Phase 2: 2017 – 2021	Phase 3: 2022 – 2026	Phase 4: 2027 – 2031	Phase 5: After 2031
Secure and Monitor Baseline Supplies and Demands	• Bay Delta Conservation Plan Completion • Fisheries and Aquatic Habitat Collaborate Effort Settlement Completion • Secure San Francisco Public Utilities Commissions supplies • Recycled Water Master Plan Updates • Continue to evaluate climate change impacts • Urban Water Management Plan Update 2015 (Updated demand and supply projections) • Water Supply and Infrastructure Master Plan Update (Validate recommended strategy)	• Anderson Dam Seismic Retrofit • Calero and Guadalupe Dam Seismic Retrofit Project • Main and Madrone Pipelines Rehabilitation • Urban Water Management Plan Update 2020 (Updated demand and supply projections) • Water Supply and Infrastructure Master Plan Update	• Urban Water Management Plan Update 2025 (Updated demand and supply projections) • Water Supply and Infrastructure Master Plan Update	• Water conservation program savings of 98,500 acre-feet per year • Urban Water Management Plan Update 2030 (Updated demand and supply projections) • Water Supply and Infrastructure Master Plan Update	• Recycled water use of approximately 30,000 acre-feet per year • Urban Water Management Plan Update 2035 (Updated demand and supply projections) • Water Supply and Infrastructure Master Plan Update
Develop Indirect Potable Reuse (20,000 acre-feet per year)	• Continue stakeholder engagement • Monitor advanced recycled water treatment effectiveness • Monitor regulations and policies	Project-level planning	Design	Construction	Operations
Additional Groundwater Recharge Ponds (3,000 acre-feet per year)		Project-level planning	Design and Construction	Operations	Operations
Imported Water Reoperations (No increase in water supply yield)	• Obtain necessary approvals	Revised operations	Revised operations	Revised operations	Revised operations
Gray Water Reuse Rebate Program (300 acre-feet per year)	• Develop groundwater protection guidelines	Operations	Operations	Operations	To Be Determined
Dry Year Options (Up to 23,000 acre-feet per year depending on severity of shortage)		Up to 8,000 acre-feet per year (AFY) in droughts	Up to 15,000 acre-feet per year (AFY) in droughts	Up to 23,000 acre-feet per year (AFY) in droughts	Up to 15,000 acre-feet per year (AFY) in droughts

Water Supply and Infrastructure Master Plan Update

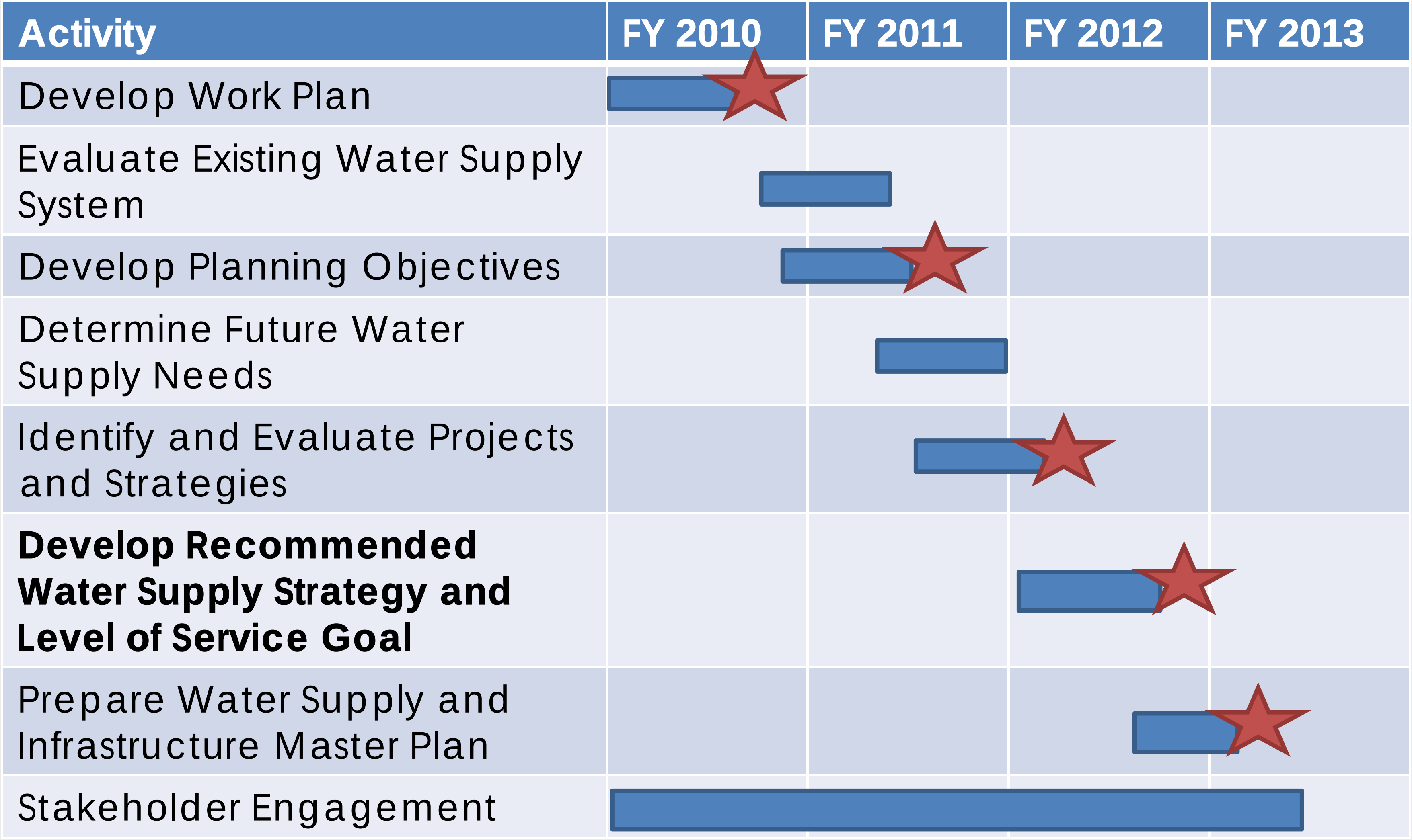
May 15, 2012

Santa Clara Valley Water District

Water Supply & Infrastructure Master Plan Goals

- Establish the long-term water supply **reliability level of service**
- Specify the **needed water supplies** to achieve the level of service
- Identify future **infrastructure capacities** needs
- Define **operating strategies**

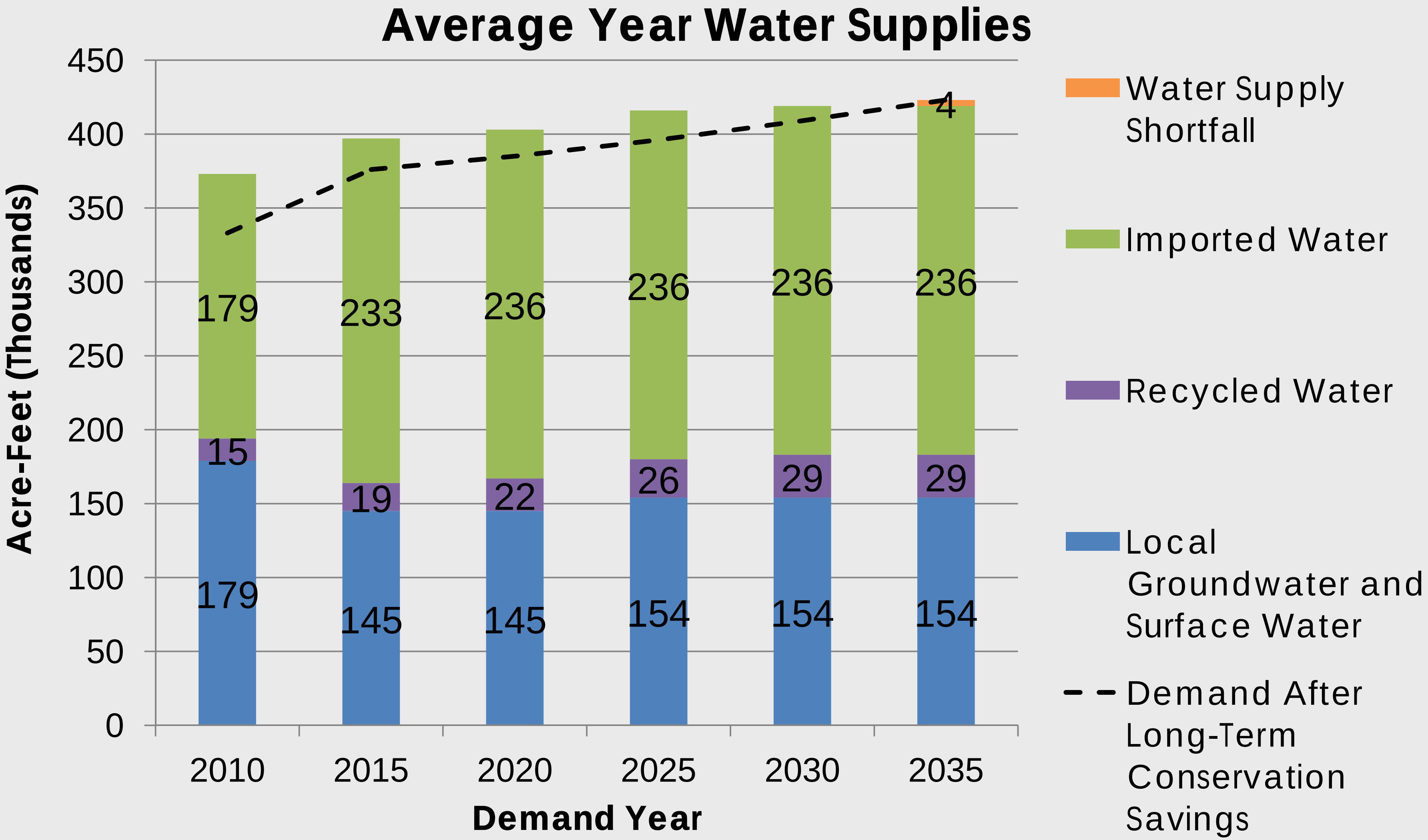
Work Completed



Activity	FY 2010	FY 2011	FY 2012	FY 2013
Develop Work Plan	★			
Evaluate Existing Water Supply System				
Develop Planning Objectives		★		
Determine Future Water Supply Needs				
Identify and Evaluate Projects and Strategies			★	
Develop Recommended Water Supply Strategy and Level of Service Goal			★	
Prepare Water Supply and Infrastructure Master Plan				★
Stakeholder Engagement				

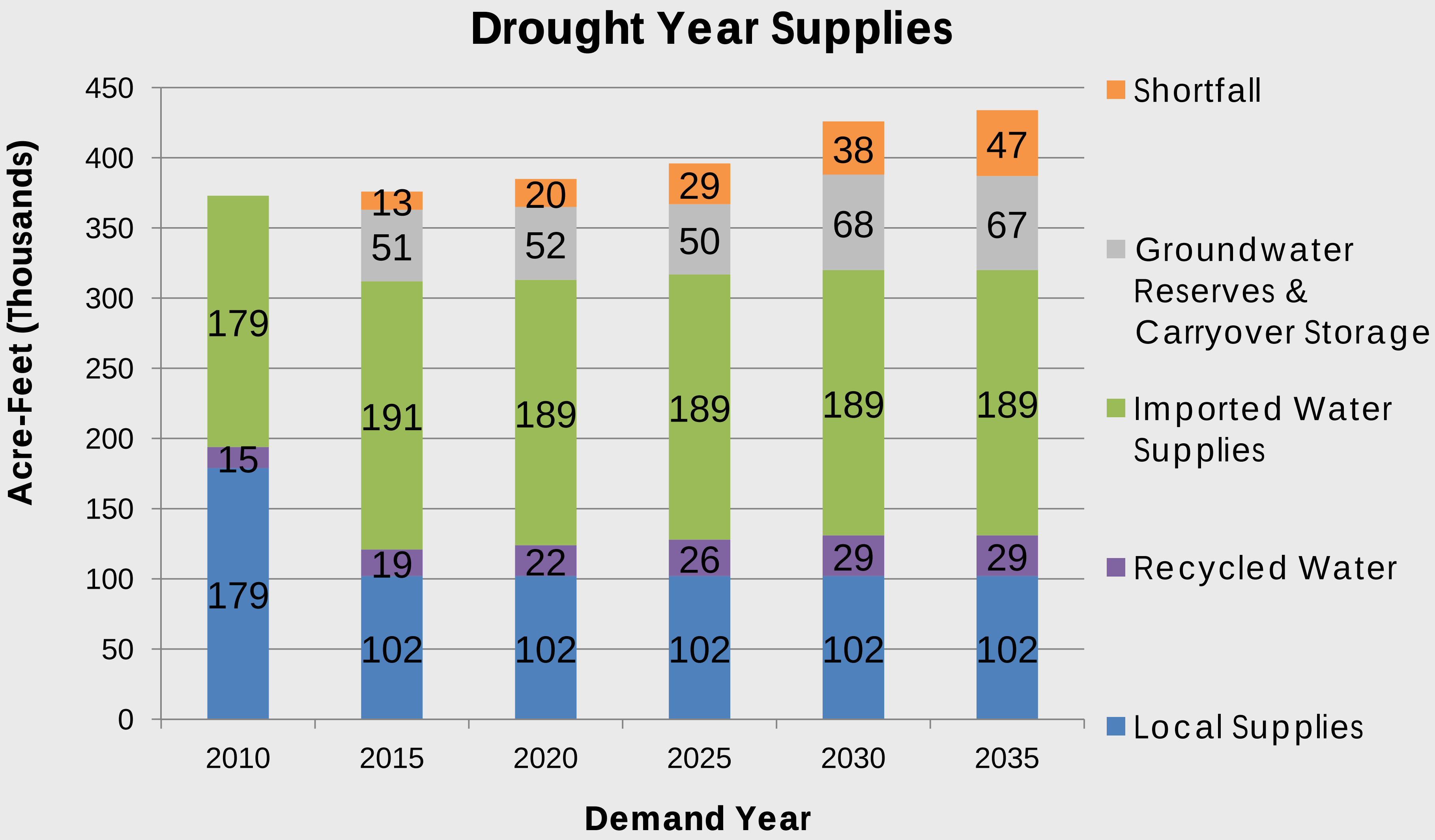
★ Board Action

Supplies Sufficient Through 2030 in Average Rainfall Years

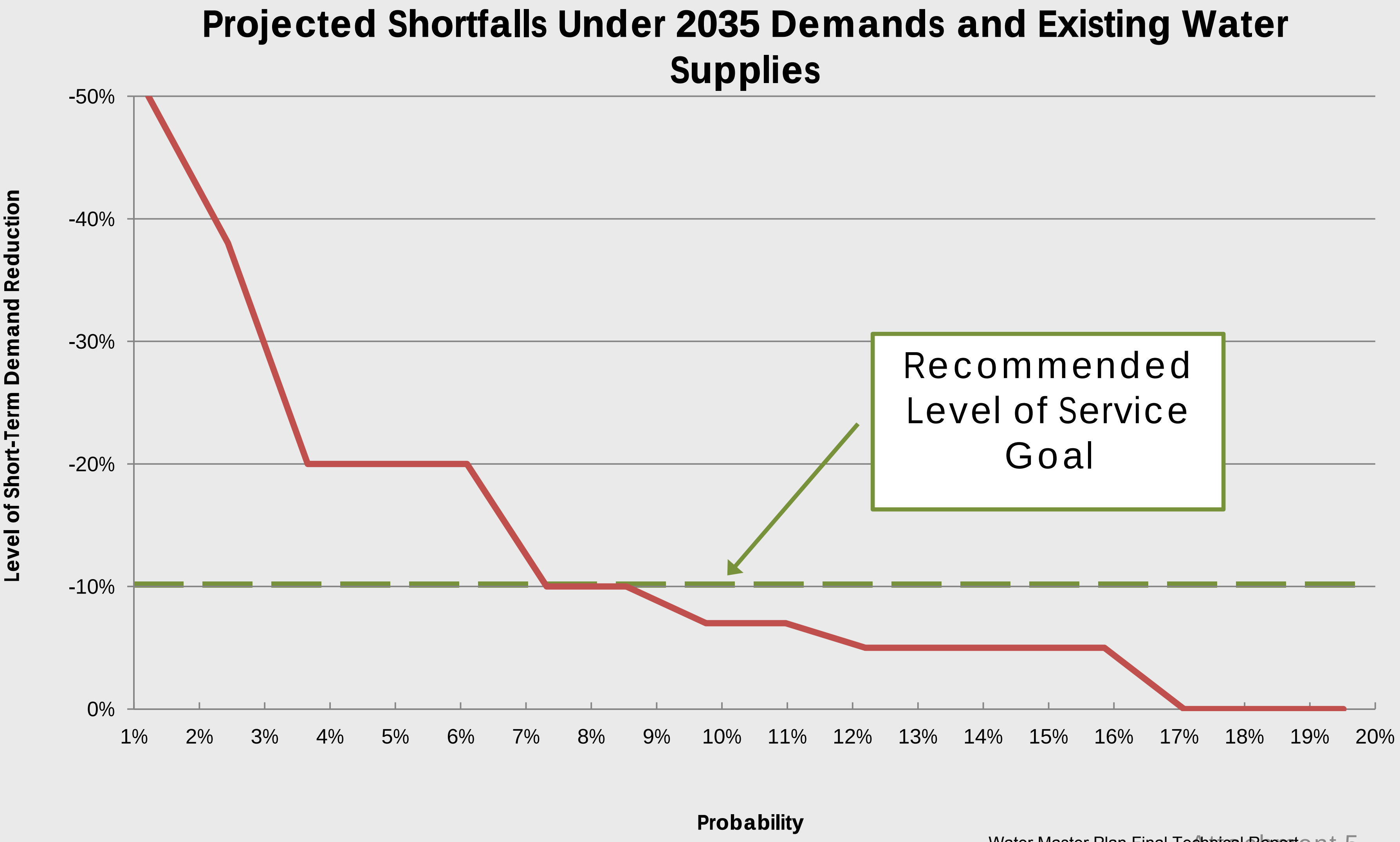


Additional drought year supplies needed to fill future water supply shortfalls

Example shortfalls during a repeat of the 1987 – 1992 drought with 2035 demands



Frequency and level of water shortages will increase as demands increase



Potential Water Supply Options

Water Conservation (Up to $400 per acre-foot)	• Continued implementation of aggressive conservation programs (46,000 acre-feet per year (AFY)) • Gray water reuse (300 AFY)
Recycled Water (Up to $1,100 per acre-foot)	• Expand non-potable recycled water use (240 – 700 AFY) • Groundwater recharge with advanced treated recycled water (3,000 to 20,000 AFY)
Additional Groundwater Recharge (Up to $400 per acre-foot)	• Additional groundwater recharge facilities (2,000 to 8.000 AFY)
System Reoperations (Up to $250 per acre-foot)	• Pipeline connections between reservoirs and raw water pipelines (900 to 3,000 AFY)
Reservoir Expansion (Up to $7,000 per acre-foot)	• Expand local reservoir storage capacity (150 to 15,000 AFY)
Desalination (Up to $2,400 per acre-foot)	• Partner in regional desalination project (2,000 AFY)
Imported Water/Water Transfers (Up to $600 per acre-foot)	• Continue dry year transfers of imported water (Up to 40,000 AFY) • Purchase additional long-term imported water transfers (Up to 10,000 AFY)

Planning objectives based on Board policy

Planning Objectives	Sub-Objectives
Ensure Water Supply Reliability	• Meet service area demands • Develop local supplies • Maximize flexibility to respond to change
Ensure Drinking Water Quality	• Protect groundwater quality • Meet drinking water quality regulations • Maximize treatability
Minimize Cost Impacts	• Minimize lifecycle costs
Maximize Implementation Potential	• Maximize District influence over supplies and operations • Minimize implementation complexities and barriers
Maximize Water Conservation	• Maximize water conservation
Protect the Natural Environment	• Provide benefits to watershed, creeks, and natural resources • Reduce greenhouse gas emissions
Ensure Community Benefits	• Ensure equitable distribution of benefits • Provide flood protection and recreation benefits

Risks to Water Supply Reliability

Climate change	• Change in frequency and magnitude of runoff • Reduced supplies and/or increased demands
Imported water interruptions	• Reduced imported water supplies
Regulatory restrictions and policy changes	• Reduced imported water supplies • Reduced local surface water supplies • Reduced flexibility in use of supplies for recharge
Reduction in San Francisco Public Utilities Commission deliveries to local retailers	• Reduce imported water supplies
Inaccurate projections	• Higher demands • Reduced supplies
Water quality issues	• Reduced flexibility in use of supplies • Additional treatment requirements

Water supply strategies are combinations of options to meet future water needs

Strategies meet planning criteria to avoid calls for short-term water use reductions greater than 20 percent

Water Supply Strategy	Estimated Present Value Cost	Key Projects[1]
1 - Minimize Costs	$75 Million	• Imported Water Dry Year Options (Up to 30,000 acre-feet delivered during water shortages)
2 – Maximize System Flexibility	$250 Million	• Calero Reservoir Expansion • Pipelines Connecting Uvas Reservoir and Stevens Creek Reservoir to the Raw Water System • Imported Water Dry Year Options (Up to 30,000 acre-feet delivered during water shortages)
3 - Local Supply Development	$375 Million	•Indirect Potable Reuse •New Groundwater Recharge Ponds
Recommended Strategy – Ensure Sustainability	$300 Million	•Indirect Potable Reuse •New Groundwater Recharge Ponds •Semitropic Reoperations

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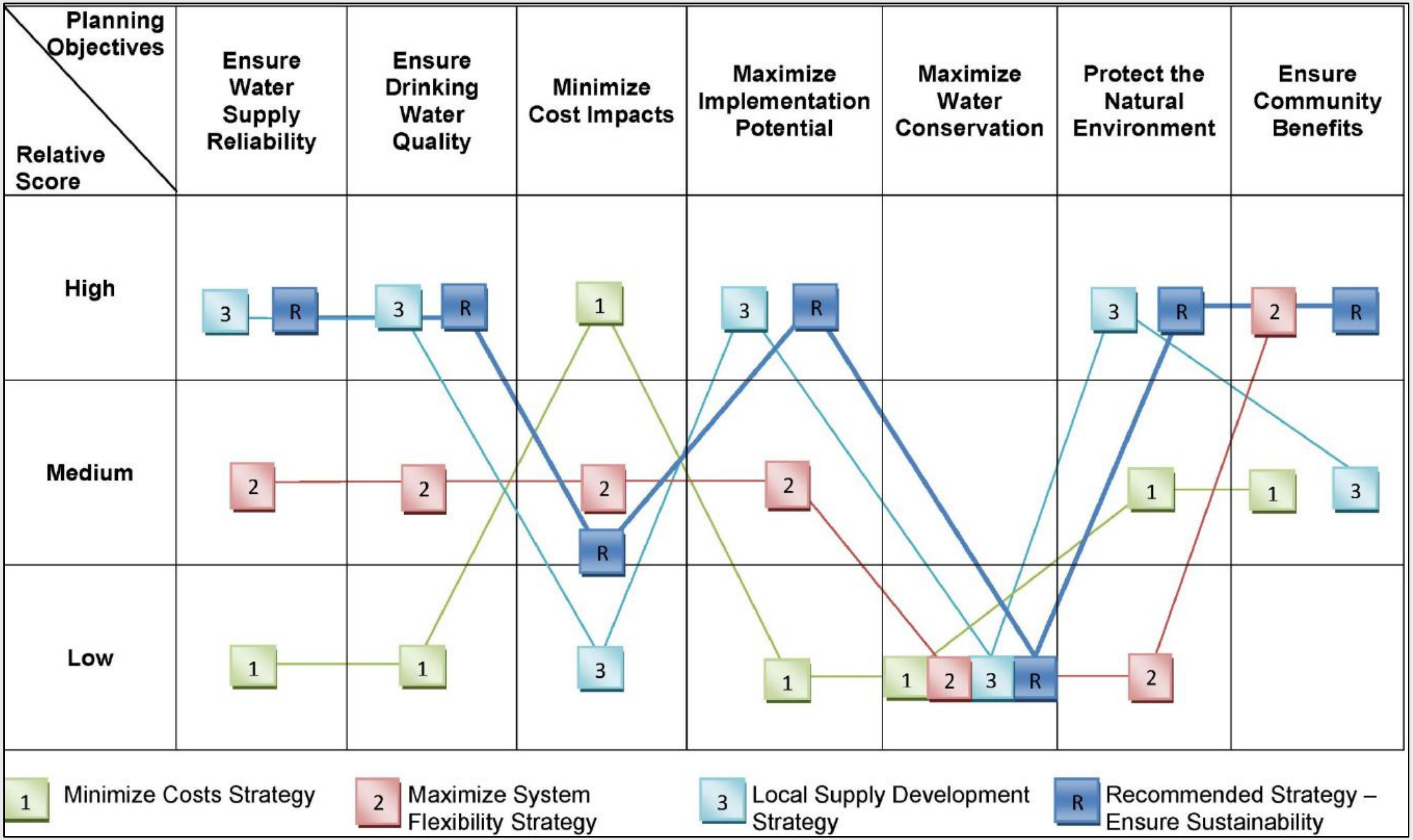
[1] All strategies include a gray water reuse rebate program and rely on securing the baseline water supply system

Different strategies have different benefits



Planning Objectives / Relative Score	Ensure Water Supply Reliability	Ensure Drinking Water Quality	Minimize Cost Impacts	Maximize Implementation Potential	Maximize Water Conservation	Protect the Natural Environment	Ensure Community Benefits
High	3 R	3 R	1	3 R		3 R	2 R
Medium	2	2	2 R	2		1	1 3
Low	1	1	3	1	1 2 3 R	2	

1 Minimize Costs Strategy

2 Maximize System Flexibility Strategy

3 Local Supply Development Strategy

R Recommended Strategy – Ensure Sustainability

Baseline elements of recommended strategy

Make capital improvements

$1,770 million

Maintain existing infrastructure

$370 million

Increase recycled water use by 14,000 acre-feet

$50 million

save20gallons.org

Increase annual conservation savings by 46,000 acre-feet

$140 million

Total Estimated Present Value Cost = $2,300 million

New elements of recommended water supply strategy

Develop indirect potable reuse

20,000 AFY

$350 million

Construct additional groundwater recharge facilities

3,000 AFY

$15 million

Imported water reoperations

No supply yield

Revenue of $60 million

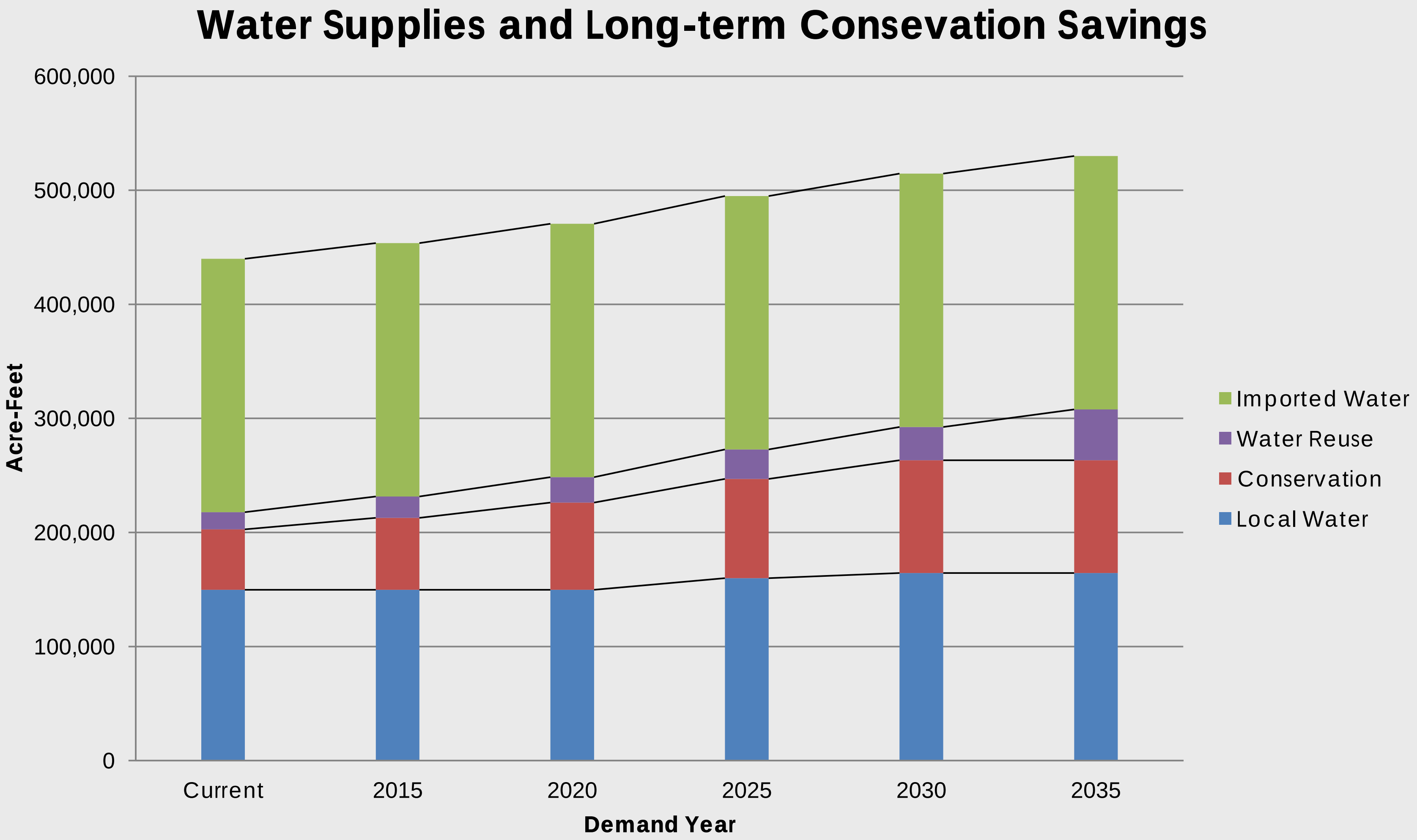
Implement gray water reuse rebate program

300 AFY

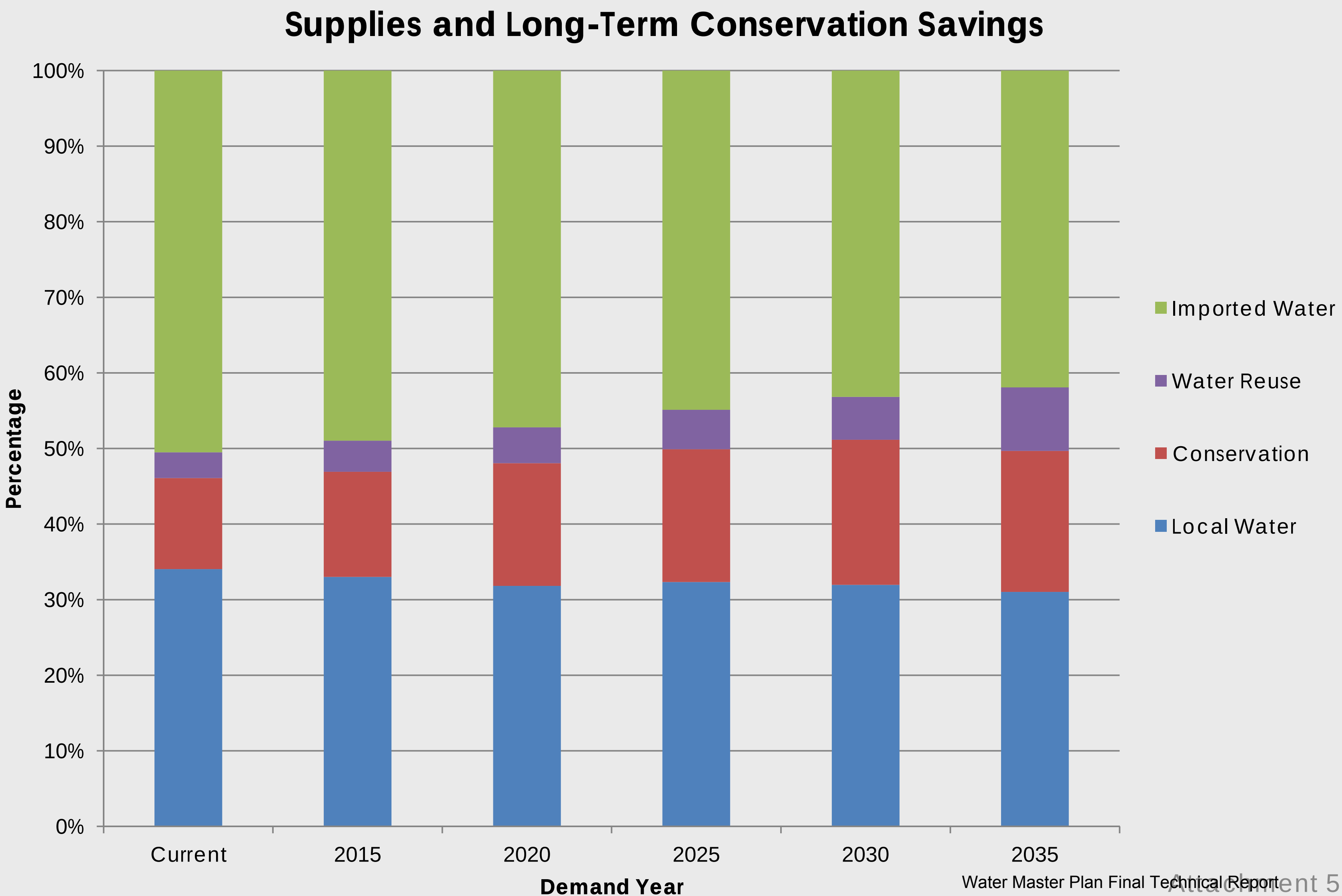
$3 million

Total Estimated Present Value Cost = $300 million

Water supply mix will change over time



Reduce reliance on imported water



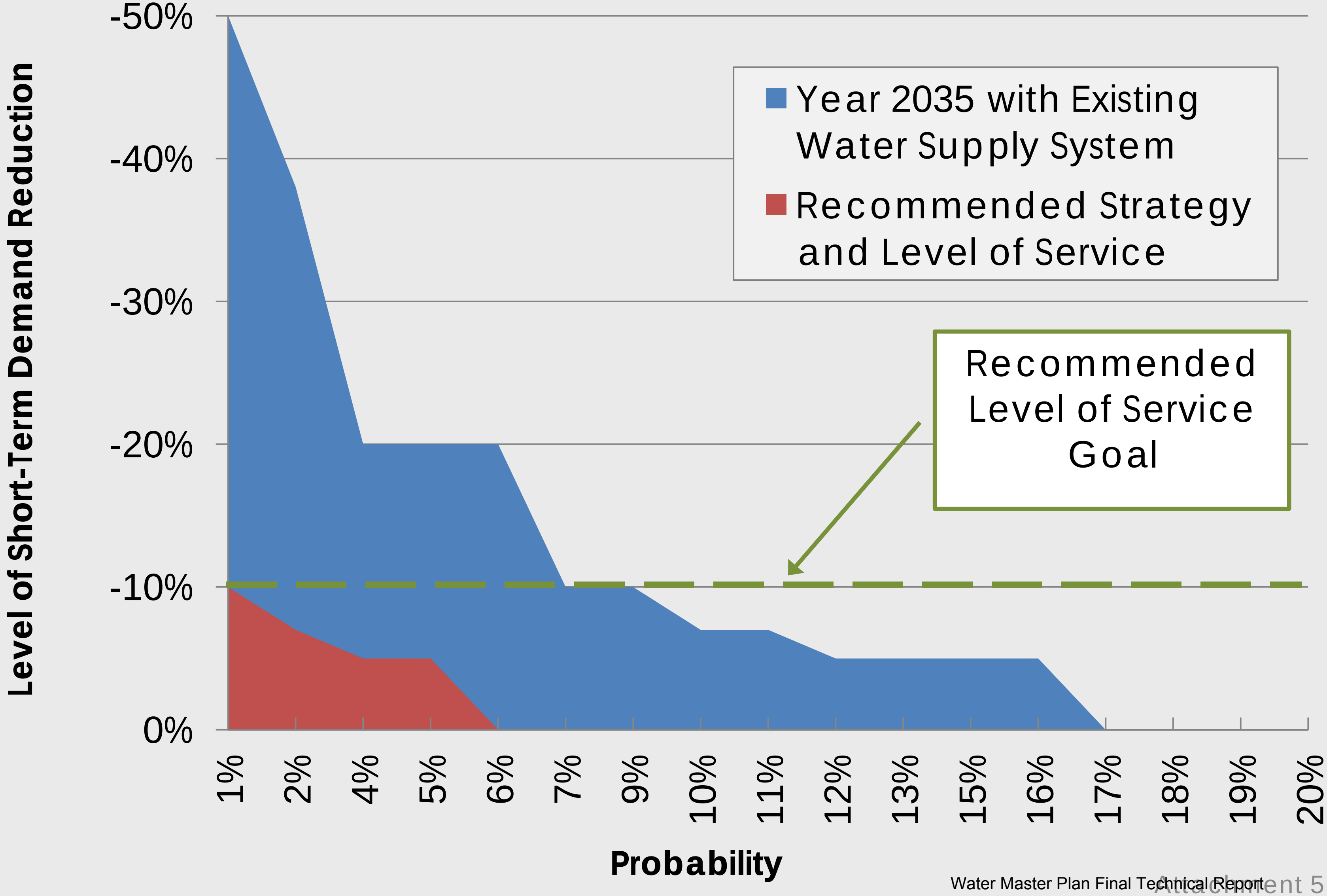
Recommended strategy supports Board policies

- Best meets planning objectives
- Develops local supplies consistent with State policy
- Manages risks
- Develops drought-proof supplies

Proposed CEO Interpretation for Level of Service

- Avoid calling for mandatory water use reductions, or more than a 10 percent short-term water use reduction
  - Stakeholder preferred goal
  - Stabilizes revenues and rates
  - Cost consistent with willingness-to-pay analyses
  - Consistent with District operating strategies

Recommendations minimize shortages



Implementation would be phased in

Strategic Element	Phase 1: 2012 – 2016	Phase 2: 2017 – 2021	Phase 3: 2022 - 2026	Phase 4: 2027 – 2031	Phase 5: 2032+
Secure Baseline	Ongoing				
Indirect Potable Reuse	Study	Plan	Design	Construct	Operate
Recharge Ponds		Plan	Design & Construct	Operate	
Imported Water Reoperations	Plan	Operate			
Gray Water Reuse	Plan	Operate			
Dry Year Options		Up to 8,000 acre-feet per year in droughts	Up to 15,000 acre-feet per year in droughts	Up to 23,000 acre-feet per year in droughts	Up to 15,000 acre-feet per year in droughts

Stakeholder committee met 10 times

Approximately 14 regular participants in the stakeholder committee

- Business and Industry
  - Santa Clara County Farm Bureau
  - Building Industry Association of Bay Area
  - Silicon Valley Leadership Group
- Cities
  - Milpitas
  - Morgan Hill
  - Palo Alto
  - San Jose
  - Santa Clara
- Environmental and Community Advocates
  - Santa Clara Basin Watershed Management Initiative
  - Santa Clara Valley Audubon Society
  - United Neighborhoods of Santa Clara County
  - League of Women Voters
- Wastewater Agencies
- Water Retailers and Wholesalers

Stakeholders have provided valuable input

- Maintain water supply reliability
- Plan for population increases and climate change
- Continue an aggressive level of water conservation programs
- Evaluate regional recycled water projects
- Consider indirect potable reuse projects
- Be aware of concerns about local reservoir expansion
- Investigate regional projects such as Los Vaqueros Reservoir Expansion
- Address concerns about the reliability of imported supplies from the Delta

Recommendations

- Accept recommended water supply strategy
  - Secure baseline
  - Develop indirect potable reuse
  - Construct groundwater recharge ponds
  - Maximize economic value of Semitropic Groundwater Bank
  - Increase water conservation
- Discuss proposed CEO Interpretation for level of service goal
  - Avoid calls for short-term water use reductions greater than 10 percent

Santa Clara Valley Water District

FC 1025 (08/17/11)

Meeting Date: 6/12/12
Agenda Item: 4.2
Unclassified Manager: F. Maitski
Extension: 2284
Director(s): All

BOARD AGENDA MEMO

SUBJECT: Level of Service Goal for Long-Term Water Supply Reliability

RECOMMENDATION:

Concur with the proposed CEO Interpretation of Board Policy E-2.1 that would document a level of service goal to develop water supplies designed to meet 100 percent of average annual water demand identified in the District's Urban Water Management Plan during non-drought years and at least 90 percent of average annual water demand in drought years.

SUMMARY:

Staff is preparing the 2012 Water Supply and Infrastructure Master Plan (Water Master Plan) that will document the District's long-term strategy for achieving Board Policy E-2.1, which states "current and future water supply for municipalities, industries, agriculture, and the environment is reliable." On May 15, 2012, the Board received an update on the Water Master Plan and accepted staff's recommended water supply strategy of securing baseline water supplies, developing potable reuse, constructing additional groundwater recharge ponds, imported water reoperations, and gray water reuse. The Board also discussed a proposed CEO interpretation of Board Policy E-2.1 that would establish a level of service goal to limit calls for short-term water use reductions to no more than 10 percent. The Board identified several concerns with the proposed CEO Interpretation language, including it seemed to be a rule rather than a goal, it was not tied to water conservation and water use, and it set unreasonable expectations on the level of water supply reliability the District would provide. The Board directed staff to return with revised level of service goal language. This item presents and discusses the revised, proposed CEO Interpretation of Board Policy E-2.1.

The revised, proposed CEO Interpretation of Board Policy E-2.1 is, "develop water supplies designed to meet 100 percent of average annual water demand identified in the District's Urban Water Management Plan during non-drought years and at least 90 percent of average annual water demand in drought years."

The Urban Water Management Plan documents anticipated water conservation, water demands, and water supplies during future years. The District's 2010 Urban Water Management Plan anticipates average annual water demands increasing from 330,000 acre-feet in 2011 to about 423,000 acre-feet in 2035. The demand projection for 2035 would be about 521,000 acre-feet without planned water conservation savings increasing from about 51,000 acre-feet in 2011 to 98,500 acre-feet per year by 2030. In other words, almost 20 percent of future water needs will be met with conservation savings. On the supply side, the Urban Water Management Plan projects that the local and imported water supplies will remain about the same through 2035. Recycled water use, which offsets potable water use, is projected to increase from about 15,000 acre-feet in 2011 to about 29,000 acre-feet per year in 2035. The Urban Water Management Plan identifies water supply shortages of more than 20 percent in 2035. Implementing the recommended water supply strategy for the Water Master Plan would add additional water reuse and conservation to the District's water supply mix and enable the District to achieve the level of service in the proposed CEO Interpretation. Securing existing supplies, and ensuring water conservation and recycling targets are achieved, are necessary for meeting demands.

Staff believes the revised, proposed CEO Interpretation, or level of service goal, meets the Board's interests in the following ways:

- It sets a reasonable expectation of the level of service the District will provide. It focuses on the level of supplies the District will develop within its authority and responsibility as a water supply agency.
- It guides long-term planning decisions. Annual decisions, such as whether to call for short-term demand reductions, are best made through annual operations planning that accounts for year-to-year variations in supply conditions.
- It is linked to meeting water conservation and water use projections in the District's Urban Water Management Plan. Water retailers and land use agencies will need to continue to support water conservation efforts and development that is consistent with long-term demand projections.

FINANCIAL IMPACT:

There is no financial impact from the recommended action at this time. Future investments in new water supplies and infrastructure, with an estimate present value of approximately $300 million, will be necessary to meet the proposed CEO Interpretation. Recommended projects and programs will be brought to the Board through the annual budget and Capital Improvement Program planning processes over the next five to ten years of the planning horizon.

CEQA:

The recommended action does not constitute a project under CEQA because it does not have a potential for resulting in direct or reasonably foreseeable indirect physical change in the environment.

ATTACHMENTS:

None.

APPENDIX E

SWOT Analysis

Water Master Plan

SWOT Analysis

	Strengths (Internal District)	Weaknesses (Internal District)	Opportunities (External)	Threats (External)
Sources of Supply	• District has multiple sources of supply including the groundwater basin, multiple local reservoirs, recycled water, imported SWP and CVP, transfers and exchanges, the SFPUC intertie and Semitropic water banking. • District has successful conservation programs	• Limited recharge capacity in Llagas Groundwater Subbasin • South county supplies are not as diverse as in north county	• Expand recharge in north or south county • Expand existing in-county reservoirs • San Luis Reservoir low point solution • Isolated facility or other Delta improvements • Partnerships with other agencies and companies on recycled water or local surface water supplies • Partnerships with other agencies for regional and local desalination • Los Vaqueros Reservoir Expansion • Pacheco Reservoir Expansion	• Decreased availability of CVP and SWP sources due to environmental restrictions, drought, pumping constraints or infrastructure failure (seismic or age) • Potential high cost of new infrastructure (reservoirs, etc.) • Uncertainty and potential high cost of Delta improvements • Interruptible SFPUC contracts; future decreases in SFPUC supplies • Growing statewide competition for limited resources • Climate change may lead to decreased supply availability and/or saltwater intrusion
Recycled Water, Water Conservation, and Demand Management	• Recycled water use at 5% with plans to reach 10% in the future • Advanced Water Treatment Project enhances recycled water quality, increasing potential for expansion • 40-year recycled water agreement with the City of San Jose could increase recycled water use by an additional 50,000 acre-feet year • Plans to expand recycled water system in south county • Public perception of non-potable recycled water use is generally positive • Conservation is relatively inexpensive	• Limited recycled water distribution network; not all areas have access • Community education and outreach efforts need to be implemented for indirect potable re-use • Not all wells are metered	• Stormwater re-use or greywater use • Work with cities and County to adopted and implement water conservation ordinances • Indirect potable re-use through integration of advanced treated water into District's water supply system • Local land use agency policies for low-impact development may decrease demands • Partnership with City of San Jose for expansion of non-potable recycled water use and for potential future indirect potable re-use using SBWR water • Increase conservation among agricultural users • SBX7-7 requirements for 20 percent reduction in per capita water use by 2020	• Recycled water regulations could limit its expansion and use • Public perception of indirect potable re-use is unknown • Conflict or competition with other agencies (local or regional) for recycled water • Expense of expanding recycled water systems (pipelines and retrofits) • Potential changes in demands due to pricing, contracts changes, climate change, population growth, etc.
Operational Flexibility and Efficiency	• Dual imported sources allow for moving water around state • District's complex system and multiple sources allow for great operational flexibility in most areas • District is monitoring GHG reduction and energy efficiency • Multiple raw water sources are available to supply the WTPs and groundwater recharge operations strategies	• Pacheco pump efficiency and San Felipe system capacity constraints can limit District capabilities to take max CVP contract allotment • DSOD operating restrictions on several reservoirs • An electrical system master plan is needed to streamline electrical improvements and improve energy efficiency throughout the District • Several irrigators on raw water pipelines are not well monitored, which leads to inefficient system operations • Limited raw water processing capacity on the west side	• Connect local storage reservoirs to the raw water pipelines or improve operations to increase beneficial use of water (Uvas, Lexington) • Maximize use of Calero reservoir, as it can receive water from 5 sources • Implement new technologies to make system more efficient (automated valves, electronic data transfer, etc.) • Retailer exchanges or use of retailer systems for transfer s • Determine if Semitropic water bank can be better utilized	• Environmental requirements can increase cost and complexity of project and program implementation • Decreased reliability and increased cost of power could limit District operations • HCP may require several new infrastructure projects in order for District to continue operations (fish passage, supplemental water supply systems, etc.) • San Luis low point problem can limit District abilities to take CVP water
Infrastructure Condition and Reliability	• Pipelines that have been inspected are in acceptable condition for their ages • Control systems master plan will improve reliability • Currently working on upgrading infrastructure and adding required service factor capacity at RWTP • District has a dam safety program and other programs to maintain current infrastructure • Recharge facilities have well maintained capacity • East treated water system has redundant sources and a redundant delivery pipeline SFPUC Intertie is available for system outages •	• Several dam outlet structures may need rehab • Several dam hydraulic operating systems are in poor condition and at risk of failure • Specific facilities in poor condition include Vasona and Almaden-Calero Canals, Vasona Pumps, Church Diversion Dam, several systems at PWTP • Most pipelines do not have cathodic protection • Pacheco, Santa Clara and Santa Teresa Tunnels have leakage that may require repair • No redundancy in some parts of system, especially on the west side treated system • Fixed treatment plant capacity • The District has not fully implemented the Infrastructure Reliability Program.	• Develop and implement a functional asset management program that replaces or rehabs infrastructure at appropriate times • HCP will provide permits for system maintenance • Add redundant pipelines where needed • West Pipeline extension or west side SFPUC connection • Westside package plant could provide some redundancy • South County water treatment plant • Implement IRP program to improve post-disaster reliability	• Potential seismic and spillway and freeboard upgrades at several dams due to DSOD regulations • Invasive species could degrade infrastructure or force isolation of facilities • South Bay Aqueduct has experienced frequent leaks • Delta levee failure could disrupt imported supplies • Sea level rise may impact some facilities • High-speed rail could impact some facilities, requiring upgrades or replacements • Catastrophic environmental threats such as earthquakes, floods, and landslides
Water Quality	• Advanced treatment processes (Ozone) were added at STWTP and PWTP	• Nitrate in south county groundwater • Dozens of groundwater cleanup sites throughout the county addressing fuel, solvents, and toxics leaks and spills	• Advanced treatment project is planned for RWTP	• Water quality contamination from potentially contaminating activities (septic systems, agriculture, recycled water use, chemical storage, etc.) • New drinking water regulations, including regulations for emerging contaminants
Other Water Resources Planning Issues		• Inadequate endangered species data could limit future project implementation • Flood and erosion control projects could result in loss of recharge or include environmental requirements that limit the ability to manage the flows for water supply benefits • Shortfall in revenues due to droughts		• Agreements with USACE for Downtown Guadalupe flood protection project requires District to maintain operations on Guadalupe, Almaden, and Calero • Long-term funding stability • Reduced grant funding opportunities, especially for recycled water

APPENDIX F

WEAP Modeling Assumptions

WEAP MODELING ASSUMPTIONS

General	
Historical Hydrology	1922 – 2003
Normal/Average Year	2002
Single Dry Year	1977
Multiple Dry Year	1987 - 1992
Imported Water	
Imported Water Allocations	2009 Department of Water Resources (DWR) reliability study[1] & Central Valley Project (CVP) allocation from Calsim II[2] results w/ Reallocation Agreement[3]
Semitropic Participation	350,000 acre-foot (AF) capacity; initial storage - 250,000 AF
Semitropic "put"	From State Water Project (SWP) and CVP after 40,000 AF of carryover in San Luis Reservoir
Semitropic "take"	If treated water contract demand is not met and/or groundwater storage falls below 300,000 AF. Take increases as groundwater storage decreases
San Luis Reservoir	Storage for each historical hydrologic year from 2009 DWR reliability study Calsim II(2) results
CVP Carryover	Maximum of 75,000 acre-feet per year (AFY); lost if San Luis Reservoir storage goes to 2,000,000 AF
SWP Carryover	Maximum of 50,000 AFY year; lost if San Luis Reservoir storage goes to 2,000,000 AF

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[1] *State Water Project Delivery Reliability Report 2009* provides current and future State Water Project delivery allocations and incorporates the restrictions on SWP and CVP operations in accordance with the biological opinions of the U.S. Fish and Wildlife Service and National Marine Fishery Service issued on Dec. 15, 2008 and June 4, 2009, respectively. The projection for future (2029) conditions also incorporates climate change and an accompanying rise in sea level.

[2] CalSim II is the model used to simulate California State Water Project (SWP)/Central Valley Project (CVP) operations based on historical hydrology. CalSim II modeling performed for the 2009 Reliability Report provides the basis for SWP and CVP allocations.

[3] Reallocation Agreement: The District entered into a 25-year water reallocation agreement in 1997 with U.S Bureau of Reclamation (Reclamation) and parties in the San Luis & Delta Mendota Water Authority to supplement and support the Bureau's draft Municipal and Industrial (M&I) Water Shortage Policy. The draft policy provides M&I allocations of 75% or more in most years, but these can drop to 50% of historic use, or to public health and safety levels, when severe water shortages are imposed on irrigation contractors.

San Francisco Public Utilities Commission (SFPUC)	SFPUC supplies based on Interim Supply Allocations adopted by SFPUC in December 2010, Procedure for Pro-Rata Reduction of Wholesale Customers' Individual Supply Guarantees under 2010 demand conditions, and Tier 2 Allocations calculation spreadsheet.
Recycled Water	
Recycled Water	Based on estimates provided by county RW producers and retailers.
Groundwater	
Natural Groundwater Recharge (NGWR)	Average: 67,300 AFY; 2002: 62,800 AF
Net groundwater losses (average)	0
Initial Groundwater Storage	Santa Clara Plain – 268,600 AF Coyote Valley – 18,000 AF Llagas-75,000 AF
Maximum Groundwater Pumping Capacity	Santa Clara Plain – 200,000 AF
Groundwater Storage Capacity	Santa Clara Plain – 350,000 AF Coyote Valley – 25,000 AF Llagas – 155,000 AF
Reservoirs	
Flood Rule Curves	Yes
Emergency Storage	Anderson 20,000 AF and Calero 4,000 AF
Anderson & Calero to Water Treatment Plants	Anderson: up to 6,000 AF per month as storage approaches Division of Safety of Dams (DSOD) restriction level or flood rule curve
Reservoir siltation	Not included
Fisheries and Aquatic Habitat Collaborative Effort Operations	Included in Anderson Reservoir operations
DSOD restrictions included	Yes, through 2020. Almaden (1.267 TAF), Anderson (51.2 TAF and 90 TAF by demand year 2025), Calero (5.67 TAF), Guadalupe (2.888 TAF).
Almaden-Calero Canal	Calero below flood rule curve; maximum of 6,000 AFY
Recharge	
Average Recharge Rates	Santa Clara Plain – 92,800 AFY

	Coyote – 16,900 AFY Llagas-36,800 AFY
Demands	
Demand Projections	Retailers, Association of Bay Area Governments (ABAG) 2009
Weather Factors	None
Conservation ('92 Baseline) including Agriculture	2035: 98,500 AF
Water Shortage Contingency Plan Actions	Evaluated with and without Water Shortage Contingency Plan actions identified in the District's 2010 Urban Water Management Plan (UWMP)
Total Countywide Demands	2035: 422,900 AF, based on District's 2010 UWMP
Other	
Climate Change	Imported water supply projections incorporate climate change impacts per Reliability Study(1); no impacts included in local water supply projection
Assumes existing and planned (as of FY12) infrastructure and supplies will be reliable	Yes
CVP Reallocation Agreement(3) (1997 - 25 year agreement)	Assumed to continue throughout planning horizon
New Demand	Per retailers, maintain groundwater/treated water proportion for incremental increases in demand
Priority	Highest priority for imported and Semitropic supplies is to meet treated water contract demands
Water Treatment Plant (WTP) Capacity[4]	Rinconada WTP-80 MGD (90,000 AFY) Penitencia WTP- 39 MGD (38,700 AFY) Santa Teresa WTP- 100 MGD (93,100 AFY
Treated Water (contract)	Values are stepped in 5-year increments i.e. 2011-2015 uses 2015 TW demands, 2016-2020 uses 2020 demands, etc. 2035: 143,000 AF
Treated Water (non contract)	20,000 AFY; 0 if SWP allocation is less than 52%

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[4] Water treatment plant capacities listed in millions of gallons per day (MGD) are design capacities. Capacities listed in acre-feet per year are operational capacities and include downtime for plant maintenance.

APPENDIX G

WEAP MODELING OUTPUT

This appendix shows summaries of WEAP model output for about 30 strategies. Information is provided on storage in groundwater subbasins, reservoirs, Semitropic Groundwater Bank, and carryover. Information is also provide on supply from natural groundwater recharge, other local surface water supplies, recycled water, San Francisco Public Utilities Commission, District-managed local surface water supplies, and indirect potable reuse. Information is provided for key hydrologic years: 1922 (initial model conditions), 1977 (driest year on record), 1983 (wettest year on record), 1987 – 1992 (extended drought), and 2002 (normal year). In addition, the last column titled, "sum," provides the sum of data over the 82-years in the model simulation.

Unless otherwise noted in the spreadsheet title, the demand year is 2035.

Copies of complete WEAP output will be stored with the project files.

Initial Baseline

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Groundwater Storage (Acre-foot)	Groundwater	Groundwater	Groundwater S	Groundwater S	Groundwater S	Groundwater	Groundwate	Groundwater	Groundwater	Groundwater Storage (Acre-foot	
Coyote Subbasin	19795.5	8592.5	23868.6	22707.6	10962.0	0.0	0.0	24.4	1350.1	22821.8	
LlagasSubbasin	80063.0	110894.8	145490.8	134580.1	119204.3	105043.6	93594.6	95975.2	104575.5	144422.8	
North County Santa Clara Sbb	278073.4	176611.2	331869.2	292869.3	205648.6	141565.2	24358.8	36184.8	90952.3	324473.8	
Sum	377931.9	296098.5	501228.5	450157.0	335814.8	246608.8	117953.3	132184.4	196877.8	491718.3	
Reservoir Storage Volume (Acre-foot)	Reservoir Stor	Reservoir Stor	Reservoir Stora	Reservoir Stora	Reservoir Stora	Reservoir Stor	Reservoir St	Reservoir Stor	Reservoir Stor	Reservoir Storage Volume (Acre-	
Almaden Reservoir	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	351.0	
Anderson Reservoir	22000.0	21765.5	69864.0	31730.4	21939.3	21954.3	21550.4	22000.0	22000.0	51567.9	
Calero Reservoir	1000.0	693.5	5600.0	1000.0	932.6	1000.0	1000.0	993.9	2233.3	4457.5	
Chesbro Reservoir	500.0	500.0	4586.0	500.0	436.5	451.7	500.0	500.0	1293.4	4586.0	
Coyote Reservoir	1000.0	989.3	5200.0	5200.0	997.2	993.7	910.4	1000.0	1000.0	5200.0	
Guadalupe Reservoir	200.0	168.9	1188.0	200.0	200.0	200.0	200.0	200.0	200.0	1188.0	
Lexington Reservoir	1475.3	697.3	16000.0	4206.6	1251.2	527.7	212.2	1823.7	3995.4	9395.4	
Pacheco Reservoir	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	
Stevens Creek Reservoir	31.0	181.5	2368.0	583.6	31.0	31.0	31.0	31.0	1609.5	2368.0	
Uvas Reservoir	2703.9	2824.1	5987.7	1486.9	1104.1	557.6	500.0	3963.6	6258.0	6258.0	
cvp caryover	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
cvp overflow not used	0.0	15666.5	146791.8	146791.8	146791.8	146791.8	146791.8	146791.8	146791.8	158537.7	
semitropic reservoir	242493.3	25368.3	71528.2	52859.7	13934.9	0.0	0.0	0.0	0.0	100428.1	
swp caryyover	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	123.1	
swp overflow not used	0.0	0.0	45573.3	45573.3	45573.3	45573.3	45573.3	45573.3	45573.3	45573.3	
Sum	276603.5	74054.9	379886.9	295332.2	238391.9	223281.0	222469.1	228077.2	236154.6	395033.9	
Groundwater Natural Recharge (Acre-foot)	Groundwater	Groundwater	Groundwater N	Groundwater N	Groundwater N	Groundwater	Groundwate	Groundwater	Groundwater	Groundwater N	Groundwater Na
Coyote Subbasin	2535.0	1326.9	5335.0	1838.8	1544.9	1101.9	1457.8	2541.2	3273.6	2141.8	183393.1
LlagasSubbasin	24664.6	19659.9	33521.4	20971.2	20239.6	19330.3	21198.0	22272.2	21962.7	22365.9	1888278.1
North County Santa Clara Sbb	39177.8	26853.8	56312.9	30423.5	26962.8	27176.6	25998.0	24763.5	29247.2	34205.1	2881697.9
Sum	66377.4	47840.6	95169.3	53233.5	48747.3	47608.8	48653.8	49576.9	54483.5	58712.8	4953369.1
Transmission Link Flow (Acre-foot)	Transmission	Transmission	Transmission Li	Transmission Li	Transmission Li	Transmission	Transmissio	Transmission	Transmission	Transmission Li	Transmission Lin
Transmission Link from lake elsman to sjw west to SJ Water Company	12613.8	1362.0	14943.8	3997.9	3455.9	6503.9	3720.9	6431.9	3455.9	7405.9	815457.0
Transmission Link from stanford water to Stanford Moffett Field Ames	823.0	64.0	692.0	187.0	160.0	303.0	174.0	296.0	160.0	681.0	51733.2
Sum	13436.8	1426.0	15635.8	4184.9	3615.9	6806.9	3894.9	6727.9	3615.9	8086.9	867190.3
Transmission Link Flow (Acre-foot)	Transmission	Transmission	Transmission Li	Transmission Li	Transmission Li	Transmission	Transmissio	Transmission	Transmission	Transmission Li	Transmission Lin
Transmission Link from SCRWA to Morgan Hill to Morgan Hill Service Are	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from deliver recycled to gilroy to Gilroy Service Ar	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	131196.6
Transmission Link from hecker pass recycled to Gilroy Service Area	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from morgan hill recycled to Morgan Hill Service Are	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from recycle pa to palo alto to Palo Alto Service Ar	1055.7	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	69136.2
Transmission Link from recycle sv to sunnyvale to Sunnyvale Service Ar	1900.0	1900.0	1900.0	1900.0	1900.0	1900.0	1900.0	1900.0	1900.0	1900.0	155797.7
Transmission Link from recycled 1 to Llagas Ag	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	98400.0
Transmission Link from recycled SB to SJWC to SJ Water Company	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	3385.6	85.5	3041.7	240592.8
Transmission Link from recycled SB to santa clara to Santa Clara Servi	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	383760.0
Transmission Link from recycled pa to mountain view to Mountain View S	994.2	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	98961.3

	1922	**1977**	**1983**	**1987**	**1988**	**1989**	**1990**	**1991**	**1992**	**2002**	**Sum**
Transmission Link from recycled sb to milpitas to Milpitas Service Are	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	172692.0
Transmission Link from recycled sb to sj muni north to SJ Muni North	9500.4	9839.7	9839.7	9839.7	9839.7	9839.7	9839.7	9304.8	8012.7	9839.7	804154.2
Transmission Link from recycled sb to sjMuni edenvale to SJ Muni servi	4071.6	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	306387.9
Sum	30149.6	30149.6	30149.6	30149.6	30149.6	30149.6	30149.6	29958.6	25366.4	30149.6	2461078.8
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission Li	Transmission Li	Transmission Li	Transmission L	Transmission	Transmission L	Transmission L	Transmission Li	Transmission Lin
Transmission Link from hh to PHills to Purisma Hills Service Area	1828.0	1828.0	1828.0	1828.0	1828.0	1516.0	1516.0	1516.0	1516.0	1828.0	147200.7
Transmission Link from hh to Sunnyvale to Sunnyvale Service Area	13249.0	13249.0	13249.0	13249.0	13249.0	10988.0	10988.0	10988.0	10988.0	13249.0	1066882.9
Transmission Link from hh to milpitas service area to Milpitas Service	8451.0	8451.0	8451.0	8451.0	8451.0	7008.8	7008.8	7008.8	6890.2	8451.0	680402.7
Transmission Link from hh to moffett ames to Stanford Moffett Field Am	3395.0	3395.0	3395.0	3395.0	3395.0	2815.6	2815.6	2815.6	2815.6	3395.0	273384.2
Transmission Link from hh to mountain view to Mountain View Service Ar	14487.4	14407.8	14407.8	14407.8	14407.8	12120.0	12101.1	9259.3	7165.5	14407.8	1145173.3
Transmission Link from hh to palo alto to Palo Alto Service Area	14295.5	14397.2	14397.2	14397.2	14397.2	12121.7	12108.8	9352.6	7314.0	14397.2	1144549.2
Transmission Link from hh to santa clara to Santa Clara Service Area	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from hh to sj muni n to SJ Muni North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sum	55705.9	55728.0	55728.0	55728.0	55728.0	46570.3	46538.4	40940.4	36689.4	55728.0	4457593.1
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission Li	Transmission Li	Transmission Li	Transmission L	Transmission	Transmission L	Transmission L	Transmission Li	Transmission Lin
Transmission Link from local stevens creek flood release to Tributary	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from local uvas flood release to Tributary Inflow 5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from release from anderson to cvp pl to Anderson PL	420.5	4393.2	59949.9	8066.5	6702.6	344.8	442.7	4730.9	7088.6	971.2	670455.5
Transmission Link from release from calero to cvp pl to Calero PL rele	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from release from pacheco to Tributary Inflow 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sum	420.5	4393.2	59949.9	8066.5	6702.6	344.8	442.7	4730.9	7088.6	971.2	670455.5
Streamflow (below node or reach listed) (All Rivers) (Acre-foot)	Streamflow (b	Streamflow (b	Streamflow (be	Streamflow (be	Streamflow (be	Streamflow (b	Streamflow (	Streamflow (b	Streamflow (b	Streamflow (be	Streamflow (bel
SWP 1 Supply 0 \ Headflow	61999.1	10999.8	96998.6	29999.6	29999.6	56999.2	21999.7	27999.6	23999.6	63999.1	4939927.4
cvp 0 source supply 0 \ Headflow	121128.4	69175.9	152497.8	94555.5	64999.0	100323.6	64999.0	75023.6	81706.6	108114.6	8991576.1
Demand Site Inflows and Outflows (Demand Site: NC Coyote Pond Recharge	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from IPR Coyote	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Inflow from Lower Coyote Creek	10233.1	1743.7	10950.0	10950.0	3784.0	303.6	782.0	4567.9	4705.1	10950.0	803501.5
Inflow from cvp 3 santa clara conduit	390.4	0.0	0.0	0.0	0.0	339.9	0.0	0.0	0.0	0.0	1585.1
Outflow to North County Santa Clara Sbb	-10623.5	-1743.7	-10950.0	-10950.0	-3784.0	-643.5	-782.0	-4567.9	-4705.1	-10950.0	-805086.6
Sum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Demand Site Inflows and Outflows (Demand Site: Ford Pond Recharge) (Acr	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from IPR Coyote	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Inflow from Lower Coyote Creek	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Outflow to North County Santa Clara Sbb	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Demand Site Inflows and Outflows (Demand Site: Los Gatos Ponds) (Acre-fo	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from IPR LG Ponds	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Inflow from Los Gatos Creek	4757.3	3741.5	0.0	9412.1	4330.5	4234.7	3192.7	5334.3	9578.7	11023.0	971906.5
Inflow from SWP 3 central pipeline	0.0	0.0	0.0	30.4	428.1	0.0	0.0	0.0	0.0	4758.5	59742.4
Inflow from cvp 7 central pl	16843.6	544.7	0.0	1445.9	1396.4	3866.0	0.0	0.0	0.0	6013.6	284702.3

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Outflow to North County Santa Clara Sbb	-21600.9	-4286.2	0.0	-10888.4	-6155.0	-8100.7	-3192.7	-5334.3	-9578.7	-21795.2	-1316351.2
Sum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Demand Site Inflows and Outflows (Demand Site: Almaden and Guadalupe	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from Guadalupe Creek	6,371.30	385.6	0.00	2,894.10	1,644.20	3,113.80	2,701.40	5,176.90	6,079.70	6,259.10	418,048.40
Inflow from IPR Guadalupe	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inflow from SWP 4 almaden valley pipeline	126.80	0	0.00	894.70	0.00	0.00	0.00	0.00	0.00	667.30	9,859.90
Inflow from cvp 5 almaden valley pl	262.10	0.00	0.00	1,838.80	255.90	0.00	0.00	0.00	0.00	680.40	33,848.40
Outflow to North County Santa Clara Sbb	-6,760.20	-385.60	0.00	-5,627.60	-1,900.20	-3,113.80	-2,701.40	-5,176.90	-6,079.70	-7,606.90	-461,756.70
Sum	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demand Site Inflows and Outflows (Demand Site: Kooser) (Acre-foot)	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from IPR Guadalupe	0.00	0	0.00	0.00	0	0	0	0	0	0.00	0.00
Inflow from SWP 4 almaden valley pipeline	47.00	0	0.00	387.20	0	67.1	0	0	0	584.00	14,514.20
Inflow from cvp 5 almaden valley pl	245.8	0	0	613.3	239	54.4	0	0	103.8	584.00	46,641.60
Outflow to North County Santa Clara Sbb	-292.80	0	0.00	-1,000.50	-239	-121.5	0	0	-103.8	-1,168.00	-61,155.80
Sum	0.00	0	0.00	0.00	0	0	0	0	0	0.00	0.00
Demand Site Inflows and Outflows (Demand Site: Los Capitancillos Ponds) (	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from Guadalupe Creek	2,141.90	23	2,846.60	1,111.40	597.9	1,132.30	982.30	1,365.50	1,681.70	1,982.40	166,620.20
Inflow from IPR Guadalupe	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inflow from SWP 4 almaden valley pipeline	46.10	0	0.00	412.50	0	0.00	0	0.00	0.00	339.30	9,724.30
Inflow from cvp 5 almaden valley pl	95.30	0	0.00	770.50	93.10	0.00	0.00	0.00	0.00	408.00	23,640.30
Outflow to North County Santa Clara Sbb	-2,283.30	-23	-2,846.60	-2,294.40	-691.00	-1,132.30	-982.30	-1,365.50	-1,681.70	-2,729.60	-199,984.90
Sum	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demand Site Inflows and Outflows (Demand Site: Overfelt Ponds) (Acre-foo	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from IPR Penitencia	0	0	0.00	0	0	0	0	0	0	0	0.00
Inflow from Penitencia Creek	0	0	0.00	0.00	0	0	0	0	0	0	0.00
Inflow from SWP 2 SBA pipeline	450.7	117.7	1,460.00	1,460.00	236	320.5	0	0	0	1,460.00	92,210.50
Outflow to North County Santa Clara Sbb	-450.7	-117.7	-1,460.00	-1,460.00	-236	-320.5	0	0	0	-1,460.00	-92,210.50
Sum	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Penitencia Ponds) (Acre-f	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from IPR Penitencia	0	0	0.00	0	0	0	0	0	0	0	0.00
Inflow from Penitencia Creek	0	0	0.00	0.00	0.00	0	0	0	0	0	0.00
Inflow from SWP 2 SBA pipeline	766.20	200.1	2,482.00	2,482.00	401.20	544.9	0	0	0	2,482.00	156,757.80
Outflow to North County Santa Clara Sbb	-766.20	-200.1	-2,482.00	-2,482.00	-401.20	-544.9	0	0	0	-2,482.00	-156,757.80
Sum	0	0	0	0	0	0	0	0	0	0	0
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission Li	Transmission Li	Transmission Li	Transmission L	Transmission	Transmission L	Transmission L	Transmission Li	Transmission Lin
Transmission Link from Uvas release to Llagas recharge to Church Pond	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from anderson release to butterfield to Butterfield	0.00	0	0.00	0.00	0	0	0	0.00	0.00	0.00	0.00
Transmission Link from anderson release to madronne to Madrone Ponds	7,888.80	426.3	1,677.50	3,368.80	1,237.50	0	0	1,000.00	1,000.00	3,368.80	258,314.60
Transmission Link from lex pl 1 to Rinconanda WTP	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 10 to NC IWRP recharge	0	0	0	0	0	0	0	0	0	0	0

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Transmission Link from lex pl 2 to San Tomas Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 3 to Wildcat Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 4 to Saratoga Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 5 to Rodeo Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 6 to Calabazas Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 7 to Regnart Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 8 to Mcclellan Pond recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 9 to Stevens Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local 2 coyote pond recharge to Coyote Pond Rec	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transmission Link from local 2 guad creek to Guadalupe creek	5,618.30	340	7,081.00	3,153.50	1,449.90	2,745.80	2,382.20	4,565.10	5,361.20	5,519.40	471,220.40
Transmission Link from local 2 lower coyote recharge to lower coyote r	1,460.00	348.2	1,460.00	1,460.00	1,085.20	429.5	574.7	856	1,092.00	1,460.00	115,324.20
Transmission Link from local 2 overfelt to Overfelt Ponds	0	0	0.00	0	0	0	0	0	0	0	0.00
Transmission Link from local 2 pen ponds to Penitencia Ponds	0	0	0.00	0	0	0	0	0	0	0	0.00
Transmission Link from local 2 upper coyote to NC Upper Coyote Recharg	171.7	35.4	0	159.3	133.9	45.9	64.3	111.3	134.9	171.7	11,090.20
Transmission Link from local Chesbro release to recharge to Church Pon	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transmission Link from local Uvas release to recharge to Uvas Recharge	10,117.80	1,787.30	3,381.80	6,791.40	4,800.80	9,556.80	6,995.30	8,713.50	10,117.80	6,791.40	609,171.80
Transmission Link from local alamitos creek to Alamitos Creek recharge	1,106.50	101.70	2,168.60	897.10	447.00	849.20	736.8	1,042.90	1,405.70	1,305.10	130,395.50
Transmission Link from local anderson 2 coyote ponds to NC Coyote Pond	10,233.10	1,743.70	10,950.00	10,950.00	3,784.00	303.6	782	4,567.90	4,705.10	10,950.00	803,501.50
Transmission Link from local anderson release to main ave ponds to Mai	2,122.80	229.4	451.4	1,314.40	551.3	0	0	500	500	906.50	81,233.50
Transmission Link from local anderson res to Church Pond and Llagas Re	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local anderson res to Lower Llagas Recharge	0.00	0	0.00	0	0	0	0	0	0.00	0.00	0.00
Transmission Link from local calabasas creek to Calabazas Creek Rechar	1,149.00	236	1,474.40	141	353	200	50	374.4	1,015.20	1,869.00	72,406.70
Transmission Link from local calero creek to Calero Creek recharge	724.00	43	912.50	406.40	186.8	353.80	307.00	588.30	689.00	711.30	60,564.40
Transmission Link from local guadalupe 1 to Los Capitancillos Ponds	2,141.90	23	2,846.60	1,111.40	597.9	1,132.30	982.30	1,365.50	1,681.70	1,982.40	166,620.20
Transmission Link from local guadaupe 2 to Almaden and Guadalupe Pond	6,371.30	385.6	0.00	2,894.10	1,644.20	3,113.80	2,701.40	5,176.90	6,079.70	6,259.10	418,048.40
Transmission Link from local lg creek diversion to Los Gatos Ck rechar	0.00	264.40	5,840.00	2,895.40	350.20	496.00	48.00	496.00	1,914.50	992.00	246,022.50
Transmission Link from local lg pond diversion to Los Gatos Ponds	4,757.30	3,741.50	0.00	9,412.10	4,330.50	4,234.70	3,192.70	5,334.30	9,578.70	11,023.00	971,906.50
Transmission Link from local lower Llagas recharge to Lower Llagas Rec	2,980.30	294.6	2,415.60	2,473.20	383	484.2	1,466.60	4,340.00	6,435.90	4,023.90	337,610.00
Transmission Link from local penitencia creek to Penitencia Creek Rech	1,335.80	164	0	475	334	484	227	410	747	1,198.00	63,296.80
Transmission Link from local regnart creek to Regnart Creek Recharge	276.7	14	366.3	15	20	4	1	73.3	189.4	451.7	16,995.90
Transmission Link from local release 2 ford ponds to Ford Pond Recharg	0.00	0.00	0.00	0.00	0.00	0	0	0.00	0.00	0.00	0.00
Transmission Link from local release 2 upper coyote to Coyote Upper Re	15,284.40	1,227.60	11,947.30	15,768.70	3,375.50	514.3	0	6,550.30	7,309.00	14,283.70	1,092,792.80
Transmission Link from local rodeo creek to Rodeo Creek Recharge	67.6	2	126.00	2	3	0	0	16	50	178.7	5,041.90
Transmission Link from local ross creek recharge to Ross Creek Recharg	863.8	290	1,234.00	487	421	364	364	517	633	888	57,927.10
Transmission Link from local san tomoa creek to San Tomas Creek Rechar	691.4	188.5	822.4	299.1	271.5	170.3	233.9	311.8	388.5	771.9	48,813.60
Transmission Link from local saratoga div to NC IWRP recharge	0.00	0	0.00	0.00	0	0.00	0	0	0.00	0.00	0.00
Transmission Link from local saratogo creek to Saratoga Creek Recharge	2,683.40	648	3,604.40	1,133.00	593	1,203.20	981	958.2	1,846.00	3,512.20	185,108.40
Transmission Link from local silver creek to Silver Creek Recharge	722.40	85	730.00	715.00	331.00	93.00	262.00	58.00	103.00	730.00	53,071.30
Transmission Link from local stevens creek to Stevens Creek Recharge	2,561.20	599.6	3,650.00	3,650.00	2,484.30	1,437.40	1,362.20	2,691.50	3,631.60	3,650.00	273,404.70
Transmission Link from local thompson creek to Thompson Creek Recharg	750.7	47	1,090.00	617	362	52	178	32	109	927	54,156.00
Transmission Link from local wildcat creek to Wildcat Creek Recharge	443.50	122.50	534.50	194.40	176.50	110.70	152.10	202.70	252.50	484.10	30,533.50
Sum	82,523.60	13,388.20	64,764.30	70,784.20	29,707.00	28,378.60	24,044.30	50,852.70	66,970.30	84,408.70	6,634,572.40
demand_reduction_fctr	0.00	0.00	0.00	0.00	0.00	0.00	-0.10	-0.38	-0.50	0.00	

Initial Strategy 1 Local

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Groundwater Storage (Acre-foot)	Groundwater S	Groundwater S	Groundwater S	Groundwater S	Groundwater S	Groundwater S	Groundwater	Groundwater S	Groundwater S	Groundwater Storage (Acre-foot)	
Coyote Subbasin	19,795.50	10,832.80	23,905.40	22,807.70	13,290.00	0	0	0	1,182.20	23,576.90	
LlagasSubbasin	80,063.00	123,097.40	147,820.00	141,979.50	123,299.90	108,775.00	94,945.30	95,462.80	103,516.10	146,535.10	
North County Santa Clara Sbb	278,073.40	253,819.10	343,898.70	311,299.90	250,501.40	221,598.50	123,999.70	99,255.40	119,979.90	332,543.80	
Sum	377,931.90	387,749.30	515,624.10	476,087.10	387,091.40	330,373.50	218,945.00	194,718.20	224,678.30	502,655.80	
Reservoir Storage Volume (Acre-foot)	Reservoir Stor	Reservoir Stor	Reservoir Stora	Reservoir Stora	Reservoir Stora	Reservoir Stor	Reservoir St	Reservoir Stor	Reservoir Stor	Reservoir Storage Volume (Acre	
Almaden Reservoir	200	200	200	200	200	200	200	200	200	351	
Anderson Reservoir	22,000.00	22,000.00	69,864.00	38,312.00	21,939.30	21,954.30	21,550.40	22,000.00	22,000.00	51,769.50	
Calero Reservoir	1,000.00	697	5,600.00	1,000.00	932.6	1,000.00	1,000.00	993.9	2,233.30	4,457.50	
Chesbro Reservoir	500	500	4,586.00	500	436.5	451.7	500	499.1	664.3	4,586.00	
Coyote Reservoir	1,000.00	1,000.00	5,200.00	5,200.00	997.2	993.7	910.4	1,000.00	1,000.00	5,200.00	
Guadalupe Reservoir	200	168.9	1,188.00	200	200	200	200	200	200	1,188.00	
Lexington Reservoir	1,475.30	225	7,133.70	1,171.50	394.00	174.4	112.4	405.80	1,122.20	5,301.40	
Pacheco Reservoir	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	
Stevens Creek Reservoir	31	181.5	2,368.00	513	31	31	31	31	1,459.00	2,368.00	
Uvas Reservoir	2,703.90	2,303.80	5,987.70	500	500	500	500	500	4,464.10	6,258.00	
cvp caryover	0	0	0	2,746.00	0	0	0	0	0	24,573.00	
cvp overflow not used	0	163,300.50	383,102.80	383,102.80	383,102.80	383,102.80	383,102.80	383,102.80	383,102.80	465,538.70	
semitropic reservoir	242,493.30	326,980.50	349,999.20	350,000.00	314,122.50	284,509.20	248,772.80	211,821.60	177,377.70	314,031.60	
swp caryyover	0	0	0	1,830.60	0	0	0	0	0	16,269.40	
swp overflow not used	0	47,155.00	183,783.60	183,783.60	183,783.60	183,783.60	183,783.60	183,783.60	183,783.60	188,530.60	
Sum	276,603.50	569,712.20	1,024,013.00	974,059.40	911,639.50	881,900.70	845,663.50	809,537.90	782,606.90	1,095,422.80	
Groundwater Natural Recharge (Acre-foot)	Groundwater N	Groundwater N	Groundwater N	Groundwater N	Groundwater N	Groundwater N	Groundwater	Groundwater N	Groundwater N	Groundwater N	Groundwater Na
Coyote Subbasin	2,535.00	1,326.90	5,335.00	1,838.80	1,544.90	1,101.90	1,457.80	2,541.20	3,273.60	2,141.80	183,393.10
LlagasSubbasin	24,664.60	19,659.90	33,521.40	20,971.20	20,239.60	19,330.30	21,198.00	22,272.20	21,962.70	22,365.90	1,888,278.10
North County Santa Clara Sbb	39,177.80	26,853.80	56,312.90	30,423.50	26,962.80	27,176.60	25,998.00	24,763.50	29,247.20	34,205.10	2,881,697.90
Sum	66,377.40	47,840.60	95,169.30	53,233.50	48,747.30	47,608.80	48,653.80	49,576.90	54,483.50	58,712.80	4,953,369.10
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission L	Transmission L	Transmission L	Transmission L	Transmission	Transmission L	Transmission L	Transmission L	Transmission Lin
Transmission Link from lake elsman to sjw west to SJ Water Company	12,613.80	3,152.20	20,418.80	8,540.60	5,613.20	9,230.70	6,155.40	9,071.80	8,247.00	11,090.10	1,187,644.30
Transmission Link from stanford water to Stanford Moffett Field Ames	823	64	692	187	160	303	174	296	160	681	51,733.20
Sum	13,436.80	3,216.20	21,110.80	8,727.60	5,773.20	9,533.70	6,329.40	9,367.80	8,407.00	11,771.10	1,239,377.60
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission L	Transmission L	Transmission L	Transmission L	Transmission	Transmission L	Transmission L	Transmission L	Transmission Lin
Transmission Link from SCRWA to Morgan Hill to Morgan Hill Service Are	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from deliver recycled to gilroy to Gilroy Service Ar	1,600.00	1,600.00	1,600.00	1,600.00	1,600.00	1,600.00	1,600.00	1,600.00	1,600.00	1,600.00	131,196.60
Transmission Link from hecker pass recycled to Gilroy Service Area	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from morgan hill recycled to Morgan Hill Service Are	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from recycle pa to palo alto to Palo Alto Service Ar	1,055.70	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	69,136.20
Transmission Link from recycle sv to sunnyvale to Sunnyvale Service Ar	1,900.00	1,900.00	1,900.00	1,900.00	1,900.00	1,900.00	1,900.00	1,900.00	1,900.00	1,900.00	155,797.70
Transmission Link from recycled 1 to Llagas Ag	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	98,400.00
Transmission Link from recycled SB to SJWC to SJ Water Company	3,041.70	3,041.70	3,041.70	3,041.70	3,041.70	3,041.70	3,041.70	3,041.70	3,041.70	3,041.70	246,328.50
Transmission Link from recycled SB to santa clara to Santa Clara Servi	4,680.00	4,680.00	4,680.00	4,680.00	4,680.00	4,680.00	4,680.00	4,680.00	4,680.00	4,680.00	383,760.00
Transmission Link from recycled pa to mountain view to Mountain View S	994.2	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	98,961.30

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Transmission Link from recycled sb to milpitas to Milpitas Service Are	2,106.00	2,106.00	2,106.00	2,106.00	2,106.00	2,106.00	2,106.00	2,106.00	2,106.00	2,106.00	172,692.00
Transmission Link from recycled sb to sj muni north to SJ Muni North	9,500.40	9,839.70	9,839.70	9,839.70	9,839.70	9,839.70	9,839.70	9,839.70	9,839.70	9,839.70	806,516.10
Transmission Link from recycled sb to sjMuni edenvale to SJ Muni servi	4,071.60	3,732.30	3,732.30	3,732.30	3,732.30	3,732.30	3,732.30	3,732.30	3,732.30	3,732.30	306,387.90
Sum	30,149.60	30,149.60	30,149.60	30,149.60	30,149.60	30,149.60	30,149.60	30,149.60	30,149.60	30,149.60	2,469,176.40
Transmission Link Flow (Acre-foot)	Transmission I	Transmission I	Transmission L	Transmission L	Transmission L	Transmission I	Transmissior	Transmission I	Transmission I	Transmission L	Transmission Lin
Transmission Link from hh to PHills to Purisma Hills Service Area	1,828.00	1,828.00	1,828.00	1,828.00	1,828.00	1,516.00	1,516.00	1,516.00	1,516.00	1,828.00	147,200.70
Transmission Link from hh to Sunnyvale to Sunnyvale Service Area	13,249.00	13,249.00	13,249.00	13,249.00	13,249.00	10,988.00	10,988.00	10,988.00	10,988.00	13,249.00	1,066,882.90
Transmission Link from hh to milpitas service area to Milpitas Service	8,451.00	8,451.00	8,451.00	8,451.00	8,451.00	7,008.80	7,008.80	7,008.80	7,008.80	8,451.00	680,521.40
Transmission Link from hh to moffett ames to Stanford Moffett Field Am	3,395.00	3,395.00	3,395.00	3,395.00	3,395.00	2,815.60	2,815.60	2,815.60	2,815.60	3,395.00	273,384.20
Transmission Link from hh to mountain view to Mountain View Service Ar	14,487.40	14,407.80	14,407.80	14,407.80	14,407.80	12,120.00	12,120.00	12,101.10	11,726.70	14,407.80	1,160,814.80
Transmission Link from hh to palo alto to Palo Alto Service Area	14,295.50	14,397.20	14,397.20	14,397.20	14,397.20	12,121.70	12,121.70	12,108.80	11,741.00	14,397.20	1,159,887.30
Transmission Link from hh to santa clara to Santa Clara Service Area	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from hh to sj muni n to SJ Muni North	0	0	0	0	0	0	0	0	0	0	0
Sum	55,705.90	55,728.00	55,728.00	55,728.00	55,728.00	46,570.30	46,570.30	46,538.40	45,796.30	55,728.00	4,488,691.30
Transmission Link Flow (Acre-foot)	Transmission I	Transmission I	Transmission L	Transmission L	Transmission L	Transmission I	Transmissior	Transmission I	Transmission I	Transmission L	Transmission Lin
Transmission Link from local stevens creek flood release to Tributary	0	0	22,063.80	0	0	0	0	0	642.9	2,069.00	343,103.80
Transmission Link from local uvas flood release to Tributary Inflow 5	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from release from anderson to cvp pl to Anderson PL	420.5	5,024.30	60,907.80	2,174.20	10,676.80	344.8	442.7	3,707.90	5,231.10	971.20	686,324.30
Transmission Link from release from calero to cvp pl to Calero PL rele	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from release from pacheco to Tributary Inflow 6	0	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sum	420.5	5,024.30	82,971.50	2,174.20	10,676.80	344.80	442.70	3,707.90	5,874.00	3,040.20	1,029,428.00
Streamflow (below node or reach listed) (All Rivers) (Acre-foot)	Streamflow (be	Streamflow (be	Streamflow (bel	Streamflow (bel	Streamflow (bel	Streamflow (be	Streamflow (	Streamflow (be	Streamflow (be	Streamflow (bel	Streamflow (belo
SWP 1 Supply 0 \ Headflow	61,999.10	10,999.80	96,998.60	29,999.60	29,999.60	56,999.20	21,999.70	27,999.60	23,999.60	63,999.10	4,939,927.40
cvp 0 source supply 0 \ Headflow	121,128.40	69,175.90	152,497.80	94,555.50	64,999.00	100,323.60	64,999.00	75,023.60	81,706.60	108,114.60	8,991,576.10
Demand Site Inflows and Outflows (Demand Site: NC Coyote Pond Recharge	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from IPR Coyote	0	0	0	0	0	0	0	0	0	0	0
Inflow from Lower Coyote Creek	10,233.10	2,850.90	9,086.10	10,950.00	5,716.30	303.6	782	4,567.90	5,146.90	10,950.00	804,941.10
Inflow from cvp 3 santa clara conduit	390.4	450	0	0	0	65	0	0	864.9	0	3,084.40
Outflow to North County Santa Clara Sbb	-10,623.50	-3,300.90	-9,086.10	-10,950.00	-5,716.30	-368.5	-782	-4,567.90	-6,011.80	-10,950.00	-808,025.50
Sum	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Ford Pond Recharge) (Acr	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from IPR Coyote	0	0	0	0	0	0	0	0	0	0	0
Inflow from Lower Coyote Creek	0	0	0	0	0	0	0	0	0	0	0
Outflow to North County Santa Clara Sbb	0	0	0	0	0	0	0	0	0	0	0
Sum	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Los Gatos Ponds) (Acre-fo	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from IPR LG Ponds	0	19,999.70	0	15,123.10	19,999.70	19,999.70	19,999.70	19,999.70	19,999.70	13,260.10	922,781.00
Inflow from Los Gatos Creek	4,757.30	0.00	0.00	0.00	0.00	0.00	0.00	322.60	291.40	0.00	23,075.40
Inflow from SWP 3 central pipeline	0	0	0	0	0	0	0	0	0	0	535.40
Inflow from cvp 7 central pl	16,843.60	2,206.10	0	2,872.10	1,571.30	3,021.60	291.4	1,248.80	1,576.10	2,518.30	143,825.90

Initial Strategy 1 Local

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Outflow to North County Santa Clara Sbb	-21,600.90	-22,205.80	0.00	-17,995.20	-21,571.10	-23,021.30	-20,291.10	-21,571.10	-21,867.10	-15,778.40	-1,090,217.70
Sum	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Almaden and Guadalupe F	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from Guadalupe Creek	6,371.30	385.6	0.00	3,040.20	1,644.20	3,113.80	2,701.40	5,176.90	6,079.70	4,236.10	281,364.70
Inflow from IPR Guadalupe	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 4 almaden valley pipeline	126.8	1,327.30	0	1,099.10	227.6	0	0	0	0	447.3	15,140.20
Inflow from cvp 5 almaden valley pl	262.1	1,327.30	0	1,141.50	652.7	0	0	0	0	447.3	23,162.70
Outflow to North County Santa Clara Sbb	-6,760.20	-3,040.20	0.00	-5,280.70	-2,524.50	-3,113.80	-2,701.40	-5,176.90	-6,079.70	-5,130.80	-319,667.70
Sum	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Kooser) (Acre-foot)	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from IPR Guadalupe	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 4 almaden valley pipeline	47	289.6	0	441.6	109.9	138.4	0	0	0	387.2	13,094.80
Inflow from cvp 5 almaden valley pl	245.8	289.6	0	441.6	192	10.4	0	292.8	432	387.2	29,747.50
Outflow to North County Santa Clara Sbb	-292.8	-579.2	0	-883.20	-301.9	-148.8	0	-292.8	-432	-774.4	-42,842.30
Sum	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Los Capitancillos Ponds) (	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from Guadalupe Creek	2,141.90	23	2,349.50	1,184.80	597.9	1,132.30	982.3	1,365.50	1,681.70	2,015.90	173,901.50
Inflow from IPR Guadalupe	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 4 almaden valley pipeline	46.1	482.7	0	599.4	82.8	0	0	0	0	325.3	9,738.80
Inflow from cvp 5 almaden valley pl	95.3	482.7	0	653.30	237.3	0	0	0	0	325.3	16,154.80
Outflow to North County Santa Clara Sbb	-2,283.30	-988.3	-2,349.50	-2,437.50	-918	-1,132.30	-982.3	-1,365.50	-1,681.70	-2,666.60	-199,795.10
Sum	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Overfelt Ponds) (Acre-foot)	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from IPR Penitencia	0	0	0	0	0	0	0	0	0	0	0
Inflow from Penitencia Creek	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 2 SBA pipeline	450.7	724	1,460.00	1,460.00	480	643.1	3.9	287.5	393.1	1,460.00	100,473.70
Outflow to North County Santa Clara Sbb	-450.7	-724	-1,460.00	-1,460.00	-480	-643.1	-3.9	-287.5	-393.1	-1,460.00	-100,473.70
Sum	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Penitencia Ponds) (Acre-fc	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from IPR Penitencia	0	0	0	0	0	0	0	0	0	0	0
Inflow from Penitencia Creek	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 2 SBA pipeline	766.2	1,230.80	2,482.00	2,482.00	816	1,093.30	6.6	488.7	668.2	2,482.00	170,805.30
Outflow to North County Santa Clara Sbb	-766.2	-1,230.80	-2,482.00	-2,482.00	-816	-1,093.30	-6.6	-488.7	-668.2	-2,482.00	-170,805.30
Sum	0	0	0	0	0	0	0	0	0	0	0
Transmission Link Flow (Acre-foot)	Transmission I	Transmission I	Transmission L	Transmission L	Transmission L	Transmission I	Transmissior	Transmission I	Transmission I	Transmission L	Transmission Lin
Transmission Link from Uvas release to Llagas recharge to Church Pond	0	823.4	545.4	3,715.70	2,359.80	2,189.10	1,834.80	3,506.70	3,388.30	4,089.90	200,842.30
Transmission Link from anderson release to butterfield to Butterfield	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from anderson release to madronne to Madrone Ponds	7,888.80	532.8	1,048.40	3,678.10	0	0	0	1,000.00	1,217.20	3,162.50	218,561.50
Transmission Link from lex pl 1 to Rinconanda WTP	0	1,122.00	40,433.80	6,442.80	620.4	1,499.90	552.7	3,232.20	7,159.80	7,859.50	1,119,193.10
Transmission Link from lex pl 10 to NC IWRP recharge	0	0	0	0	0	0	0	0	0	0	0

Initial Strategy 1 Local

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Transmission Link from lex pl 2 to San Tomas Creek Recharge	0	0	186.4	0	0	0	0	0	0	54.2	1,620.30
Transmission Link from lex pl 3 to Wildcat Creek Recharge	0	0	121.2	0	0	0	0	0	0	35.2	1,129.20
Transmission Link from lex pl 4 to Saratoga Creek Recharge	0	0	912.3	0	0	0	0	0	0	293.2	8,096.30
Transmission Link from lex pl 5 to Rodeo Creek Recharge	0	0	492.9	0	0	0	0	68.9	47.7	80.9	10,669.90
Transmission Link from lex pl 6 to Calabazas Creek Recharge	0	0	718.7	0	0	0	0	0	0	106.4	8,970.30
Transmission Link from lex pl 7 to Regnart Creek Recharge	0	0	357	0	0	0	0	0	88.3	49.3	11,187.90
Transmission Link from lex pl 8 to Mcclellan Pond recharge	0	0	1,418.80	0	0	0	0	148.8	562.4	148.8	49,362.00
Transmission Link from lex pl 9 to Stevens Creek Recharge	0	0	621.3	0	0	0	0	0	0	0	2,267.30
Transmission Link from local 2 coyote pond recharge to Coyote Pond Rec	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local 2 guad creek to Guadalupe creek	5,618.30	340	7,081.00	4,407.50	1,449.90	2,745.80	2,382.20	4,565.10	5,361.20	6,121.70	491,296.70
Transmission Link from local 2 lower coyote recharge to lower coyote r	1,460.00	502.2	1,211.50	1,460.00	1,092.00	429.5	574.7	856	1,092.00	1,460.00	114,578.10
Transmission Link from local 2 overfelt to Overfelt Ponds	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local 2 pen ponds to Penitencia Ponds	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local 2 upper coyote to NC Upper Coyote Recharg	171.7	53.8	0	133.1	134.9	45.9	64.3	111.3	134.9	114.5	7,608.20
Transmission Link from local Chesbro release to recharge to Church Pon	0	175.9	6,554.10	1,282.50	383	243.3	744.8	2,266.20	3,807.80	3,210.10	339,519.40
Transmission Link from local Uvas release to recharge to Uvas Recharge	10,117.80	1,327.10	1,690.90	4,158.00	1,870.10	7,003.50	5,187.40	8,713.50	10,117.80	5,100.50	423,156.10
Transmission Link from local alamitos creek to Alamitos Creek recharge	1,106.50	101.7	1,795.90	931.7	447	849.2	736.8	1,042.90	1,405.70	1,323.60	134,890.10
Transmission Link from local anderson 2 coyote ponds to NC Coyote Pond	10,233.10	2,850.90	9,086.10	10,950.00	5,716.30	303.6	782	4,567.90	5,146.90	10,950.00	804,941.10
Transmission Link from local anderson release to main ave ponds to Mai	2,122.80	114.7	225.7	791.8	0	0	0	479.4	483.4	680.80	51,490.70
Transmission Link from local anderson res to Church Pond and Llagas Re	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local anderson res to Lower Llagas Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local calabasas creek to Calabazas Creek Rechar	1,149.00	236	1,130.00	141	353	200	50	374.4	1,015.20	1,869.00	71,394.90
Transmission Link from local calero creek to Calero Creek recharge	724	43	757.2	568	186.8	353.8	307	588.3	689	788.9	62,605.00
Transmission Link from local guadalupe 1 to Los Capitancillos Ponds	2,141.90	23	2,349.50	1,184.80	597.9	1,132.30	982.3	1,365.50	1,681.70	2,015.90	173,901.50
Transmission Link from local guadaupe 2 to Almaden and Guadalupe Pond	6,371.30	385.6	0.00	3,040.20	1,644.20	3,113.80	2,701.40	5,176.90	6,079.70	4,236.10	281,364.70
Transmission Link from local lg creek diversion to Los Gatos Ck rechar	0	0	2,397.90	0.00	0	0	0	496	448.00	496	77,546.30
Transmission Link from local lg pond diversion to Los Gatos Ponds	4,757.30	0.00	0.00	0.00	0.00	0.00	0.00	322.60	291.40	0.00	23,075.40
Transmission Link from local lower Llagas recharge to Lower Llagas Rec	2,980.30	118.7	1,207.80	136.9	0	240.9	737.4	2,243.60	3,769.70	613.8	118,903.10
Transmission Link from local penitencia creek to Penitencia Creek Rech	1,335.80	164	0	390	334	484	227	410	747	743.00	41,295.10
Transmission Link from local regnart creek to Regnart Creek Recharge	276.7	14	276.9	15	20	4	1	73.3	189.4	451.7	16,753.80
Transmission Link from local release 2 ford ponds to Ford Pond Recharg	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local release 2 upper coyote to Coyote Upper Re	15,284.40	2,336.40	11,947.30	15,768.70	5,603.40	514.3	0	7,463.10	8,430.80	15,768.70	1,100,315.90
Transmission Link from local rodeo creek to Rodeo Creek Recharge	67.6	2	93	2	3	0	0	16	50	178.7	5,008.90
Transmission Link from local ross creek recharge to Ross Creek Recharg	863.8	290	945.90	487	421	364	364	517	633	888	57,146.90
Transmission Link from local san tomoa creek to San Tomas Creek Rechar	691.4	188.5	636	299.1	271.5	170.3	233.9	311.8	388.5	771.9	48,150.60
Transmission Link from local saratoga div to NC IWRP recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local saratogo creek to Saratoga Creek Recharge	2,683.40	648	2,722.10	1,133.00	593	1,203.20	981	958.2	1,846.00	3,512.20	182,057.00
Transmission Link from local silver creek to Silver Creek Recharge	722.4	85	605.7	715	331	93	262	58	103	730	52,617.80
Transmission Link from local stevens creek to Stevens Creek Recharge	2,561.20	597.7	3,028.70	3,650.00	2,422.40	1,437.40	1,362.20	2,691.50	3,631.60	3,650.00	270,475.40
Transmission Link from local thompson creek to Thompson Creek Recharg	750.7	47	903.60	617	362	52	178	32	109	927	53,499.40
Transmission Link from local wildcat creek to Wildcat Creek Recharge	443.5	122.5	413.4	194.4	176.5	110.7	152.1	202.7	252.5	484.1	30,102.60
Sum	82,523.60	13,246.00	103,916.30	66,293.30	27,393.10	24,783.70	21,398.80	53,859.70	70,368.80	82,966.20	6,665,594.80
demand_reduction_fctr	0	0	0	0	0	0	0	-0.1	-0.19	0	

Initial Strategy 2 Flexibility

	1922	**1977**	**1983**	**1987**	**1988**	**1989**	**1990**	**1991**	**1992**	**2002**	**Sum**
Groundwater Storage (Acre-foot)	Groundwater	Groundwater	Groundwater S	Groundwater S	Groundwater S	Groundwater	Groundwate	Groundwater	Groundwater	Groundwater Storage (Acre-foot	
Coyote Subbasin	19795.5	9108.9	22941.8	22077.7	12353.1	0.0	0.0	0.0	1182.2	23576.9	
LlagasSubbasin	80063.0	115424.2	145650.7	138848.5	121616.1	107470.1	93597.9	90809.1	94805.5	143501.4	
North County Santa Clara Sbb	278073.4	236068.1	335061.1	298216.9	250631.7	221152.3	128237.1	107639.3	131805.0	329191.2	
Sum	377931.9	360601.2	503653.6	459143.1	384600.8	328622.4	221835.0	198448.4	227792.7	496269.6	
Reservoir Storage Volume (Acre-foot)	Reservoir Stor	Reservoir Stor	Reservoir Stora	Reservoir Stora	Reservoir Stora	Reservoir Stor	Reservoir Sto	Reservoir Stor	Reservoir Stor	Reservoir Storage Volume (Acre-	
Almaden Reservoir	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	677.0	
Anderson Reservoir	22000.0	22000.0	69864.0	38442.5	21939.3	21954.3	21550.4	22000.0	22000.0	51000.1	
Calero Reservoir	1000.0	5667.0	23200.0	20656.5	2166.4	1000.0	1000.0	1000.0	2236.0	23200.0	
Chesbro Reservoir	500.0	500.0	4586.0	500.0	451.2	451.7	500.0	500.0	1293.4	4586.0	
Coyote Reservoir	1000.0	1000.0	5200.0	5200.0	997.2	993.7	910.4	1000.0	1000.0	5200.0	
Guadalupe Reservoir	200.0	168.9	1700.0	200.0	200.0	200.0	200.0	200.0	200.0	1700.0	
Lexington Reservoir	1475.3	698.2	16000.0	4482.3	1329.1	552.1	219.1	1825.9	3996.2	9395.4	
Pacheco Reservoir	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	
Stevens Creek Reservoir	31.0	181.5	2368.0	583.6	31.0	31.0	31.0	31.0	1609.5	2368.0	
Uvas Reservoir	2703.9	2824.1	5987.7	997.6	1104.1	557.6	500.0	3963.6	6258.0	6258.0	
cvp caryover	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4735.3	
cvp overflow not used	0.0	31312.9	187686.7	187686.7	187686.7	187686.7	187686.7	187686.7	187686.7	204201.6	
semitropic reservoir	242493.3	176148.6	239233.5	241127.6	210675.5	189305.0	153569.2	117986.2	86597.5	200351.7	
swp caryyover	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3605.6	
swp overflow not used	0.0	0.0	48992.0	48992.0	48992.0	48992.0	48992.0	48992.0	48992.0	48992.0	
Sum	276603.5	245701.2	610017.8	554068.7	480772.6	456924.1	420358.8	390385.3	367069.2	571270.6	
Groundwater Natural Recharge (Acre-foot)	Groundwater	Groundwater	Groundwater N	Groundwater N	Groundwater N	Groundwater	Groundwate	Groundwater	Groundwater	Groundwater N	Groundwater Na
Coyote Subbasin	2535.0	1326.9	5335.0	1838.8	1544.9	1101.9	1457.8	2541.2	3273.6	2141.8	183393.1
LlagasSubbasin	24664.6	19659.9	33521.4	20971.2	20239.6	19330.3	21198.0	22272.2	21962.7	22365.9	1888278.1
North County Santa Clara Sbb	39177.8	26853.8	56312.9	30423.5	26962.8	27176.6	25998.0	24763.5	29247.2	34205.1	2881697.9
Sum	66377.4	47840.6	95169.3	53233.5	48747.3	47608.8	48653.8	49576.9	54483.5	58712.8	4953369.1
Transmission Link Flow (Acre-foot)	Transmission	Transmission	Transmission Li	Transmission Li	Transmission Li	Transmission	Transmission	Transmission	Transmission	Transmission Li	Transmission Lin
Transmission Link from lake elsman to sjw west to SJ Water Company	12613.8	1362.0	14943.8	3997.9	3455.9	6503.9	3720.9	6431.9	3455.9	7405.9	815457.0
Transmission Link from stanford water to Stanford Moffett Field Ames	823.0	64.0	692.0	187.0	160.0	303.0	174.0	296.0	160.0	681.0	51733.2
Sum	13436.8	1426.0	15635.8	4184.9	3615.9	6806.9	3894.9	6727.9	3615.9	8086.9	867190.3
Transmission Link Flow (Acre-foot)	Transmission	Transmission	Transmission Li	Transmission Li	Transmission Li	Transmission	Transmission	Transmission	Transmission	Transmission Li	Transmission Lin
Transmission Link from SCRWA to Morgan Hill to Morgan Hill Service Are	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from deliver recycled to gilroy to Gilroy Service Ar	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	131196.6
Transmission Link from hecker pass recycled to Gilroy Service Area	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from morgan hill recycled to Morgan Hill Service Are	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from recycle pa to palo alto to Palo Alto Service Ar	1055.8	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	69136.2
Transmission Link from recycle sv to sunnyvale to Sunnyvale Service Ar	1900.0	2400.0	2400.0	2400.0	2400.0	2400.0	2400.0	2400.0	2400.0	2400.0	196297.1
Transmission Link from recycled 1 to Llagas Ag	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	98400.0
Transmission Link from recycled SB to SJWC to SJ Water Company	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	249415.8
Transmission Link from recycled SB to santa clara to Santa Clara Servi	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	383760.0
Transmission Link from recycled pa to mountain view to Mountain View S	994.2	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	98961.3

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Transmission Link from recycled sb to milpitas to Milpitas Service Are	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	172692.0
Transmission Link from recycled sb to sj muni north to SJ Muni North	9500.4	9839.7	9839.7	9839.7	9839.7	9839.7	9839.7	9839.7	9839.7	9839.7	806516.1
Transmission Link from recycled sb to sjMuni edenvale to SJ Muni servi	4071.6	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	306387.9
Sum	30149.6	30649.5	30649.5	30649.5	30649.5	30649.5	30649.5	30649.5	30649.5	30649.5	2512763.1
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission Li	Transmission Li	Transmission Li	Transmission L	Transmission	Transmission L	Transmission L	Transmission Li	Transmission Lin
Transmission Link from hh to PHills to Purisma Hills Service Area	1828.0	1828.0	1828.0	1828.0	1828.0	1516.0	1516.0	1516.0	1516.0	1828.0	147200.7
Transmission Link from hh to Sunnyvale to Sunnyvale Service Area	13249.0	13249.0	13249.0	13249.0	13249.0	10988.0	10988.0	10988.0	10988.0	13249.0	1066882.9
Transmission Link from hh to milpitas service area to Milpitas Service	8451.0	8451.0	8451.0	8451.0	8451.0	7008.8	7008.8	7008.8	7008.8	8451.0	680521.4
Transmission Link from hh to moffett ames to Stanford Moffett Field Am	3395.0	3395.0	3395.0	3395.0	3395.0	2815.6	2815.6	2815.6	2815.6	3395.0	273384.2
Transmission Link from hh to mountain view to Mountain View Service Ar	14487.4	14167.1	14167.1	14167.1	14167.1	12120.0	12120.0	12006.8	11464.7	14167.1	1139031.5
Transmission Link from hh to palo alto to Palo Alto Service Area	14295.5	14397.2	14397.2	14397.2	14397.2	12121.7	12121.7	12108.8	11741.0	14397.2	1156588.8
Transmission Link from hh to santa clara to Santa Clara Service Area	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from hh to sj muni n to SJ Muni North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sum	55705.9	55487.3	55487.3	55487.3	55487.3	46570.3	46570.3	46444.1	45534.3	55487.3	4463609.5
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission Li	Transmission Li	Transmission Li	Transmission L	Transmission	Transmission L	Transmission L	Transmission Li	Transmission Lin
Transmission Link from local stevens creek flood release to Tributary	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from local uvas flood release to Tributary Inflow 5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from release from anderson to cvp pl to Anderson PL	420.5	5724.4	59949.9	3026.4	11031.9	344.8	442.7	4730.9	7088.6	971.2	676563.7
Transmission Link from release from calero to cvp pl to Calero PL rele	0.0	2227.1	0.0	1774.6	3816.0	0.0	0.0	0.0	248.7	922.3	45160.0
Transmission Link from release from pacheco to Tributary Inflow 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sum	420.5	7951.5	59949.9	4801.0	14847.9	344.8	442.7	4730.9	7337.3	1893.5	721723.7
Streamflow (below node or reach listed) (All Rivers) (Acre-foot)	Streamflow (b	Streamflow (b	Streamflow (be	Streamflow (be	Streamflow (be	Streamflow (b	Streamflow (	Streamflow (b	Streamflow (b	Streamflow (be	Streamflow (bel
SWP 1 Supply 0 \ Headflow	61999.1	10999.8	96998.6	29999.6	29999.6	56999.2	21999.7	27999.6	23999.6	63999.1	4939927.4
cvp 0 source supply 0 \ Headflow	121128.4	69435.9	162497.6	96365.5	64999.0	102493.6	64999.0	75633.6	82726.6	111324.6	9353850.7
Demand Site Inflows and Outflows (Demand Site: NC Coyote Pond Recharge	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from IPR Coyote	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Inflow from Lower Coyote Creek	10233.1	1801.9	10072.7	10950.0	5260.7	303.6	782.0	4567.9	4705.1	10950.0	805035.7
Inflow from cvp 3 santa clara conduit	390.4	0.0	0.0	0.0	0.0	450.9	0.0	0.0	864.9	0.0	5662.5
Outflow to North County Santa Clara Sbb	-10623.5	-1801.9	-10072.7	-10950.0	-5260.7	-754.4	-782.0	-4567.9	-5570.0	-10950.0	-810698.2
Sum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Demand Site Inflows and Outflows (Demand Site: Ford Pond Recharge) (Acr	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from IPR Coyote	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Inflow from Lower Coyote Creek	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Outflow to North County Santa Clara Sbb	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Demand Site Inflows and Outflows (Demand Site: Los Gatos Ponds) (Acre-fo	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from IPR LG Ponds	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Inflow from Los Gatos Creek	4757.3	3742.3	0.0	8573.5	4500.6	4282.3	3208.0	5339.0	9579.6	11023.0	845319.0
Inflow from SWP 3 central pipeline	0.0	841.5	0.0	0.0	2291.6	0.0	1626.5	1023.9	0.0	4758.5	75712.0
Inflow from cvp 7 central pl	16843.6	2324.0	0.0	1304.3	3630.3	7616.7	1235.0	5322.0	2319.4	6013.6	265063.2

Initial Strategy 2 Flexibility

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Outflow to North County Santa Clara Sbb	-21600.9	-6907.8	0.0	-9877.8	-10422.6	-11899.0	-6069.6	-11684.9	-11899.0	-21795.2	-1186094.1
Sum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Demand Site Inflows and Outflows (Demand Site: Almaden and Guadalupe I	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from Guadalupe Creek	6,371.30	8,030.00	0	6,666.00	8,030.00	5,906.30	2,705.70	6,263.20	7,658.00	8,030.00	461,518.20
Inflow from IPR Guadalupe	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inflow from SWP 4 almaden valley pipeline	126.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	126.80
Inflow from cvp 5 almaden valley pl	262.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	262.10
Outflow to North County Santa Clara Sbb	-6,760.20	-8,030.00	0	-6,666.00	-8,030.00	-5,906.30	-2,705.70	-6,263.20	-7,658.00	-8,030.00	-461,907.10
Sum	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demand Site Inflows and Outflows (Demand Site: Kooser) (Acre-foot)	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from IPR Guadalupe	0.00	0	0.00	0.00	0	0	0	0	0	0.00	0.00
Inflow from SWP 4 almaden valley pipeline	47.00	144	0.00	337.60	0	355.1	0	0	0	584.00	16,948.20
Inflow from cvp 5 almaden valley pl	245.8	94.4	0	779.2	576	108.3	0	292.8	667.20	584.00	44,631.90
Outflow to North County Santa Clara Sbb	-292.80	-238.4	0.00	-1,116.80	-576	-463.4	0	-292.8	-667.20	-1,168.00	-61,580.10
Sum	0.00	0	0.00	0.00	0	0	0	0	0	0.00	0.00
Demand Site Inflows and Outflows (Demand Site: Los Capitancillos Ponds) (A	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from Guadalupe Creek	2,141.90	23	2,686.00	1,391.00	1,191.50	1,740.00	983.90	1,527.70	1,915.00	2,047.40	183,224.20
Inflow from IPR Guadalupe	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inflow from SWP 4 almaden valley pipeline	46.10	240	0.00	362.40	0	30.10	0	0.00	0.00	339.30	10,023.80
Inflow from cvp 5 almaden valley pl	95.30	157.30	0.00	850.30	269.50	13.10	0.00	0.00	70.10	408.00	20,641.70
Outflow to North County Santa Clara Sbb	-2,283.30	-420.30	-2,686.00	-2,603.70	-1,461.10	-1,783.20	-983.90	-1,527.70	-1,985.10	-2,794.70	-213,889.70
Sum	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demand Site Inflows and Outflows (Demand Site: Overfelt Ponds) (Acre-foo	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from IPR Penitencia	0	0	0.00	0	0	0	0	0	0	0	0.00
Inflow from Penitencia Creek	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0.00
Inflow from SWP 2 SBA pipeline	450.7	614.40	1,460.00	1,460.00	679.90	1,366.00	112	723.8	1194.7	1,460.00	104,735.70
Outflow to North County Santa Clara Sbb	-450.7	-614.40	-1,460.00	-1,460.00	-679.90	-1,366.00	-112	-723.8	-1,194.70	-1,460.00	-104,735.70
Sum	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Penitencia Ponds) (Acre-fo	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from IPR Penitencia	0	0	0.00	0	0	0	0	0	0	0	0.00
Inflow from Penitencia Creek	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inflow from SWP 2 SBA pipeline	766.20	1,044.50	2,482.00	2,482.00	1,155.80	2,322.30	190.40	1,230.40	2,031.00	2,482.00	178,050.70
Outflow to North County Santa Clara Sbb	-766.20	-1,044.50	-2,482.00	-2,482.00	-1,155.80	-2,322.30	-190.40	-1,230.40	-2,031.00	-2,482.00	-178,050.70
Sum	0	0	0	0	0	0	0	0	0	0	0
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission Li	Transmission Li	Transmission Li	Transmission L	Transmission	Transmission L	Transmission L	Transmission Li	Transmission Lin
Transmission Link from Uvas release to Llagas recharge to Church Pond	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transmission Link from anderson release to butterfield to Butterfield	0.00	0	0.00	0.00	0	0	0	0.00	0.00	0.00	0.00
Transmission Link from anderson release to madronne to Madrone Ponds	7,888.80	811.2	1,677.50	3,368.80	426.30	0	0	1,000.00	1,000.00	3,368.80	245,383.60
Transmission Link from lex pl 1 to Rinconanda WTP	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 10 to NC IWRP recharge	0	0	0	0	0	0	0	0	0	0	0

Initial Strategy 2 Flexibility

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Transmission Link from lex pl 2 to San Tomas Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 3 to Wildcat Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 4 to Saratoga Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 5 to Rodeo Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 6 to Calabazas Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 7 to Regnart Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 8 to Mcclellan Pond recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 9 to Stevens Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local 2 coyote pond recharge to Coyote Pond Rec	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transmission Link from local 2 guad creek to Guadalupe creek	5,618.30	7,081.00	7,081.00	7,081.00	7,081.00	5,208.30	2,385.90	5,523.00	6,752.90	7,081.00	562,737.80
Transmission Link from local 2 lower coyote recharge to lower coyote r	1,460.00	468.20	1,343.00	1,460.00	1,092.00	429.5	574.7	856	1,092.00	1,460.00	115,260.10
Transmission Link from local 2 overfelt to Overfelt Ponds	0	0	0.00	0	0	0	0	0	0	0	0.00
Transmission Link from local 2 pen ponds to Penitencia Ponds	0	0	0.00	0	0	0	0	0	0	0	0.00
Transmission Link from local 2 upper coyote to NC Upper Coyote Recharg	171.7	50.4	0.00	146.90	134.9	45.9	64.3	111.30	134.90	171.70	9,847.90
Transmission Link from local Chesbro release to recharge to Church Pon	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transmission Link from local Uvas release to recharge to Uvas Recharge	10,117.80	1,787.30	3,381.80	6,791.40	4,206.90	9,556.80	6,995.30	8,713.50	10,117.80	6,791.40	594,274.30
Transmission Link from local alamitos creek to Alamitos Creek recharge	1,106.50	529.30	2,014.50	1,142.50	1,072.90	1,394.40	737.9	1,236.40	1,482.50	1,452.00	144,835.70
Transmission Link from local anderson 2 coyote ponds to NC Coyote Pond	10,233.10	1801.9	10072.7	10950	5260.7	303.6	782	4567.9	4705.1	10,950.00	805,035.70
Transmission Link from local anderson release to main ave ponds to Mai	2,122.80	219.20	451.4	906.50	114.70	0	0	451.4	408.6	906.50	69,693.50
Transmission Link from local anderson res to Church Pond and Llagas Re	0	0.00	0	0.00	0.00	0	0	0	0	0	0.00
Transmission Link from local anderson res to Lower Llagas Recharge	0.00	0	0.00	0	0	0	0	0	0.00	0.00	0.00
Transmission Link from local calabasas creek to Calabazas Creek Rechar	1,149.00	236	1,291.20	141	353	200	50	374.4	1,015.20	1,869.00	72,141.70
Transmission Link from local calero creek to Calero Creek recharge	724.00	912.5	839.40	912.50	912.5	671.20	307.50	711.70	870.20	912.50	72,398.40
Transmission Link from local guadalupe 1 to Los Capitancillos Ponds	2,141.90	23	2,686.00	1,391.00	1,191.50	1,740.00	983.90	1,527.70	1,915.00	2,047.40	183,224.20
Transmission Link from local guadaupe 2 to Almaden and Guadalupe Pond	6,371.30	8,030.00	0.00	6,666.00	8,030.00	5,906.30	2,705.70	6,263.20	7,658.00	8,030.00	461,518.20
Transmission Link from local lg creek diversion to Los Gatos Ck rechar	0.00	264.50	5,372.10	3,392.00	377.80	496.00	50.20	496.00	1,914.80	992.00	265,714.90
Transmission Link from local lg pond diversion to Los Gatos Ponds	4,757.30	3,742.30	0.00	8,573.50	4,500.60	4,282.30	3,208.00	5,339.00	9,579.60	11,023.00	845,319.00
Transmission Link from local lower Llagas recharge to Lower Llagas Rec	2,980.30	294.6	2,415.60	1912.1	368.2	498.9	1466.6	4,340.00	6,435.90	4,023.90	329,412.40
Transmission Link from local penitencia creek to Penitencia Creek Rech	1,335.80	164	0	427	334	484	227	410	747	1,198.00	52,378.60
Transmission Link from local regnart creek to Regnart Creek Recharge	276.7	14	327	15	20	4	1	73.3	189.4	451.7	16,948.90
Transmission Link from local release 2 ford ponds to Ford Pond Recharg	0.00	0.00	0.00	0.00	0.00	0	0	0.00	0.00	0.00	0.00
Transmission Link from local release 2 upper coyote to Coyote Upper Re	15,284.40	1,228.80	11,456.30	14,402.50	5,396.50	514.3	0	6,598.90	7,400.40	15,768.70	1,096,553.50
Transmission Link from local rodeo creek to Rodeo Creek Recharge	67.6	2	126.00	2	3	0	0	16	50	178.7	5,041.90
Transmission Link from local ross creek recharge to Ross Creek Recharg	863.8	290	1,076.60	487	421	364	364	517	633	888	57,712.50
Transmission Link from local san tomoa creek to San Tomas Creek Rechar	691.4	188.5	734.6	299.1	271.5	170.3	233.9	311.8	388.5	771.9	48,670.40
Transmission Link from local saratoga div to NC IWRP recharge	0.00	0	0.00	0.00	0	0.00	0	0	0.00	0.00	0.00
Transmission Link from local saratogo creek to Saratoga Creek Recharge	2,683.40	648	3,189.10	1,133.00	593	1,203.20	981	958.2	1,846.00	3,512.20	184,430.80
Transmission Link from local silver creek to Silver Creek Recharge	722.40	85	671.50	715.00	331.00	93.00	262.00	58.00	103.00	730.00	52,975.80
Transmission Link from local stevens creek to Stevens Creek Recharge	2,561.20	599.6	3,357.60	3,650.00	2,484.30	1,437.40	1,362.20	2,691.50	3,631.60	3,650.00	272,927.50
Transmission Link from local thompson creek to Thompson Creek Recharg	750.7	47	1,002.30	617	362	52	178	32	109	927	54,012.80
Transmission Link from local wildcat creek to Wildcat Creek Recharge	443.50	122.50	477.50	194.40	176.50	110.70	152.10	202.70	252.50	484.10	30,440.50
Sum	82,523.60	29,640.70	61,044.80	76,777.20	45,515.70	35,166.10	24,073.10	53,380.70	70,433.10	89,639.40	6,648,890.50
demand_reduction_fctr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.10	-0.19	0.00	

Initial Strategy 3 GW Quality

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Groundwater Storage (Acre-foot)	Groundwater	Groundwater	Groundwater S	Groundwater S	Groundwater S	Groundwater	Groundwate	Groundwater	Groundwater	Groundwater Storage (Acre-foot	
Coyote Subbasin	19795.5	10013.9	22417.2	22919.3	11684.7	0.0	0.0	0.0	1182.2	22865.9	
LlagasSubbasin	80063.0	120811.4	145898.4	142593.9	127005.0	112480.1	99861.9	103555.4	114499.1	147258.7	
North County Santa Clara Sbb	278073.4	194969.8	332430.3	298429.3	216796.0	168796.4	69343.0	56764.3	81682.2	333915.3	
Sum	377931.9	325795.1	500745.9	463942.5	355485.6	281276.4	169204.9	160319.6	197363.5	504039.9	
Reservoir Storage Volume (Acre-foot)	Reservoir Stor	Reservoir Stor	Reservoir Stora	Reservoir Stora	Reservoir Stora	Reservoir Stor	Reservoir St	Reservoir Stor	Reservoir Stor	Reservoir Storage Volume (Acre-	
Almaden Reservoir	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	351.0	
Anderson Reservoir	22000.0	22000.0	69864.0	36173.6	21939.3	21954.3	21550.4	22000.0	22000.0	55086.2	
Calero Reservoir	1000.0	693.5	5600.0	1000.0	932.6	1000.0	1000.0	969.6	1568.6	4457.5	
Chesbro Reservoir	500.0	500.0	4586.0	500.0	436.5	451.7	500.0	499.1	664.3	4586.0	
Coyote Reservoir	1000.0	1000.0	5200.0	5200.0	997.2	993.7	910.4	1000.0	1000.0	5200.0	
Guadalupe Reservoir	200.0	168.9	1188.0	200.0	200.0	200.0	200.0	200.0	200.0	1188.0	
Lexington Reservoir	1475.3	697.3	16000.0	4244.9	1262.0	419.6	181.6	1694.0	3381.1	8992.8	
Pacheco Reservoir	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	
Stevens Creek Reservoir	31.0	181.5	2368.0	583.6	31.0	31.0	31.0	31.0	1609.5	2368.0	
Uvas Reservoir	2703.9	2303.8	11102.6	2628.9	500.0	500.0	500.0	997.9	4793.1	11423.0	
cvp caryover	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17951.8	
cvp overflow not used	0.0	65456.2	240381.9	240381.9	240381.9	240381.9	240381.9	240381.9	240381.9	297137.1	
semitropic reservoir	242493.3	271357.6	342774.8	335216.0	296213.3	266431.5	230695.2	192562.4	155956.0	277680.1	
swp caryyover	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8677.5	
swp overflow not used	0.0	14755.6	64580.7	64580.7	64580.7	64580.7	64580.7	64580.7	64580.7	68522.6	
Sum	276603.5	384314.4	768846.0	695909.5	632674.5	602144.4	565731.4	530116.7	501335.3	768621.6	
Groundwater Natural Recharge (Acre-foot)	Groundwater	Groundwater	Groundwater N	Groundwater N	Groundwater N	Groundwater	Groundwate	Groundwater	Groundwater	Groundwater N	Groundwater Na
Coyote Subbasin	2535.0	1326.9	5335.0	1838.8	1544.9	1101.9	1457.8	2541.2	3273.6	2141.8	183393.1
LlagasSubbasin	24664.6	19659.9	33521.4	20971.2	20239.6	19330.3	21198.0	22272.2	21962.7	22365.9	1888278.1
North County Santa Clara Sbb	39177.8	26853.8	56312.9	30423.5	26962.8	27176.6	25998.0	24763.5	29247.2	34205.1	2881697.9
Sum	66377.4	47840.6	95169.3	53233.5	48747.3	47608.8	48653.8	49576.9	54483.5	58712.8	4953369.1
Transmission Link Flow (Acre-foot)	Transmission l	Transmission l	Transmission Li	Transmission Li	Transmission Li	Transmission l	Transmission	Transmission l	Transmission l	Transmission Li	Transmission Lin
Transmission Link from lake elsman to sjw west to SJ Water Company	12613.8	1362.0	14943.8	3997.9	3455.9	6503.9	3720.9	6431.9	3455.9	7405.9	815457.0
Transmission Link from stanford water to Stanford Moffett Field Ames	823.0	64.0	692.0	187.0	160.0	303.0	174.0	296.0	160.0	681.0	51733.2
Sum	13436.8	1426.0	15635.8	4184.9	3615.9	6806.9	3894.9	6727.9	3615.9	8086.9	867190.3
Transmission Link Flow (Acre-foot)	Transmission l	Transmission l	Transmission Li	Transmission Li	Transmission Li	Transmission l	Transmission	Transmission l	Transmission l	Transmission Li	Transmission Lin
Transmission Link from SCRWA to Morgan Hill to Morgan Hill Service Are	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from deliver recycled to gilroy to Gilroy Service Ar	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	131196.6
Transmission Link from hecker pass recycled to Gilroy Service Area	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from morgan hill recycled to Morgan Hill Service Are	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from recycle pa to palo alto to Palo Alto Service Ar	1055.8	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	69136.2
Transmission Link from recycle sv to sunnyvale to Sunnyvale Service Ar	1900.0	1900.0	1900.0	1900.0	1900.0	1900.0	1900.0	1900.0	1900.0	1900.0	155797.7
Transmission Link from recycled 1 to Llagas Ag	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	98400.0
Transmission Link from recycled SB to SJWC to SJ Water Company	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	246459.7
Transmission Link from recycled SB to santa clara to Santa Clara Servi	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	383760.0
Transmission Link from recycled pa to mountain view to Mountain View S	994.2	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	98961.3

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Transmission Link from recycled sb to milpitas to Milpitas Service Are	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	172692.0
Transmission Link from recycled sb to sj muni north to SJ Muni North	9500.4	9839.7	9839.7	9839.7	9839.7	9839.7	9839.7	9839.7	9839.7	9839.7	806516.1
Transmission Link from recycled sb to sjMuni edenvale to SJ Muni servi	4071.6	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	306387.9
Sum	30149.6	30149.6	30149.6	30149.6	30149.6	30149.6	30149.6	30149.6	30149.6	30149.6	2469307.5
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission Li	Transmission Li	Transmission Li	Transmission L	Transmission	Transmission L	Transmission L	Transmission Li	Transmission Lin
Transmission Link from hh to PHills to Purisma Hills Service Area	1828.0	1828.0	1828.0	1828.0	1828.0	1516.0	1516.0	1516.0	1516.0	1828.0	147200.7
Transmission Link from hh to Sunnyvale to Sunnyvale Service Area	13249.0	13249.0	13249.0	13249.0	13249.0	10988.0	10988.0	10988.0	10988.0	13249.0	1066882.9
Transmission Link from hh to milpitas service area to Milpitas Service	8451.0	8451.0	8451.0	8451.0	8451.0	7008.8	7008.8	7008.8	7008.8	8451.0	680521.4
Transmission Link from hh to moffett ames to Stanford Moffett Field Am	3395.0	3395.0	3395.0	3395.0	3395.0	2815.6	2815.6	2815.6	2815.6	3395.0	273384.2
Transmission Link from hh to mountain view to Mountain View Service Ar	14487.4	14407.8	14407.8	14407.8	14407.8	12120.0	12120.0	11726.7	11161.0	14407.8	1157323.4
Transmission Link from hh to palo alto to Palo Alto Service Area	14295.5	14397.2	14397.2	14397.2	14397.2	12121.7	12121.7	11741.0	11184.9	14397.2	1156416.6
Transmission Link from hh to santa clara to Santa Clara Service Area	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from hh to sj muni n to SJ Muni North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sum	55705.9	55728.0	55728.0	55728.0	55728.0	46570.3	46570.3	45796.3	44674.5	55728.0	4481729.3
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission Li	Transmission Li	Transmission Li	Transmission L	Transmission	Transmission L	Transmission L	Transmission Li	Transmission Lin
Transmission Link from local stevens creek flood release to Tributary	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from local uvas flood release to Tributary Inflow 5	0.0	0.0	17556.8	0.0	0.0	0.0	0.0	0.0	0.0	9908.1	870019.3
Transmission Link from release from anderson to cvp pl to Anderson PL	420.5	7241.4	61306.8	4010.8	9973.3	344.8	442.7	4685.8	7025.2	971.2	717304.2
Transmission Link from release from calero to cvp pl to Calero PL rele	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from release from pacheco to Tributary Inflow 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sum	420.5	7241.4	78863.6	4010.8	9973.3	344.8	442.7	4685.8	7025.2	10879.2	1587323.5
Streamflow (below node or reach listed) (All Rivers) (Acre-foot)	Streamflow (b	Streamflow (b	Streamflow (be	Streamflow (be	Streamflow (be	Streamflow (b	Streamflow (	Streamflow (b	Streamflow (b	Streamflow (be	Streamflow (belo
SWP 1 Supply 0 \ Headflow	61999.1	10999.8	96998.6	29999.6	29999.6	56999.2	21999.7	27999.6	23999.6	63999.1	4939927.4
cvp 0 source supply 0 \ Headflow	121128.4	69175.9	152497.8	94555.5	64999.0	100323.6	64999.0	75023.6	81706.6	108114.6	8991576.1
Demand Site Inflows and Outflows (Demand Site: NC Coyote Pond Recharge	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from IPR Coyote	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Inflow from Lower Coyote Creek	10233.1	2149.4	10423.8	10950.0	5260.7	303.6	782.0	4242.7	4467.4	10950.0	806309.3
Inflow from cvp 3 santa clara conduit	390.4	0.0	0.0	0.0	0.0	339.9	0.0	0.0	864.9	0.0	4132.5
Outflow to North County Santa Clara Sbb	-10623.5	-2149.4	-10423.8	-10950.0	-5260.7	-643.5	-782.0	-4242.7	-5332.3	-10950.0	-810441.8
Sum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Demand Site Inflows and Outflows (Demand Site: Ford Pond Recharge) (Acr	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from IPR Coyote	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Inflow from Lower Coyote Creek	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Outflow to North County Santa Clara Sbb	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Demand Site Inflows and Outflows (Demand Site: Los Gatos Ponds) (Acre-fo	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from IPR LG Ponds	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Inflow from Los Gatos Creek	4757.3	4005.9	0.0	9722.8	4664.0	4375.9	3163.1	5442.5	10569.8	9288.8	914787.4
Inflow from SWP 3 central pipeline	0.0	812.1	0.0	651.2	525.1	0.0	0.0	576.8	0.0	5392.8	113195.7
Inflow from cvp 7 central pl	16843.6	837.8	0.0	2533.9	2529.3	10097.6	241.8	3163.8	2329.1	6020.8	387761.5

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Outflow to North County Santa Clara Sbb	-21600.9	-5655.8	0.0	-12907.8	-7718.5	-14473.4	-3404.9	-9183.1	-12898.9	-20702.3	-1415744.6
Sum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Demand Site Inflows and Outflows (Demand Site: Almaden and Guadalupe	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from Guadalupe Creek	6,371.30	524.3	0.00	3,034.10	2,332.60	4,430.80	3,841.70	7,606.50	9,440.60	7,279.50	546,075.30
Inflow from IPR Guadalupe	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inflow from SWP 4 almaden valley pipeline	126.80	434.00	0.00	2,142.00	0.00	0.00	0.00	0.00	0.00	1,580.40	45,337.90
Inflow from cvp 5 almaden valley pl	262.10	536.40	0.00	3,676.80	372.10	0.00	0.00	0.00	0.00	1,708.00	101,021.10
Outflow to North County Santa Clara Sbb	-6,760.20	-1,494.80	0.00	-8,852.90	-2,704.70	-4,430.80	-3,841.70	-7,606.50	-9,440.60	-10,567.90	-692,434.30
Sum	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demand Site Inflows and Outflows (Demand Site: Kooser) (Acre-foot)	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from IPR Guadalupe	0.00	0	0.00	0.00	0	0	0	0	0	0.00	0.00
Inflow from SWP 4 almaden valley pipeline	47.00	49.6	0.00	337.60	0	44.8	0	0	0	438.40	14,041.30
Inflow from cvp 5 almaden valley pl	245.8	61.4	0	535.4	159.6	54.4	0	148.8	432	438.40	40,684.00
Outflow to North County Santa Clara Sbb	-292.80	-111	0.00	-873.00	-159.6	-99.2	0	-148.8	-432	-876.80	-54,725.40
Sum	0.00	0	0.00	0.00	0	0	0	0	0	0.00	0.00
Demand Site Inflows and Outflows (Demand Site: Los Capitancillos Ponds) (	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from Guadalupe Creek	2,141.90	23	2,706.20	941.20	444.3	844.00	731.80	1,209.10	1,491.70	1,975.40	154,384.20
Inflow from IPR Guadalupe	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inflow from SWP 4 almaden valley pipeline	46.10	82.7	0.00	408.00	0	0.00	0	0.00	0.00	339.30	11,823.30
Inflow from cvp 5 almaden valley pl	95.30	102.3	0.00	700.30	70.90	0.00	0.00	0.00	0.00	408.00	25,153.80
Outflow to North County Santa Clara Sbb	-2,283.30	-208	-2,706.20	-2,049.50	-515.20	-844.00	-731.80	-1,209.10	-1,491.70	-2,722.70	-191,361.30
Sum	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demand Site Inflows and Outflows (Demand Site: Overfelt Ponds) (Acre-foo	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from IPR Penitencia	0	0	0.00	0	0	0	0	0	0	0	0.00
Inflow from Penitencia Creek	0	0	0.00	0.00	0	0	0	0	0	0	0.00
Inflow from SWP 2 SBA pipeline	450.7	236	1,460.00	1,460.00	360	624.80	0	269.3	408.7	1,460.00	97,501.90
Outflow to North County Santa Clara Sbb	-450.7	-236	-1,460.00	-1,460.00	-360	-624.80	0	-269.3	-408.7	-1,460.00	-97,501.90
Sum	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Penitencia Ponds) (Acre-f	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from IPR Penitencia	0	0	0.00	0	0	0	0	0	0	0	0.00
Inflow from Penitencia Creek	0	0	0.00	0.00	0.00	0	0	0	0	0	0.00
Inflow from SWP 2 SBA pipeline	766.20	401.20	2,482.00	2,482.00	612.00	1,062.20	0	457.90	694.8	2,482.00	165,753.30
Outflow to North County Santa Clara Sbb	-766.20	-401.20	-2,482.00	-2,482.00	-612.00	-1,062.20	0	-457.90	-694.80	-2,482.00	-165,753.30
Sum	0	0	0	0	0	0	0	0	0	0	0
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission Li	Transmission Li	Transmission Li	Transmission L	Transmission	Transmission L	Transmission L	Transmission Li	Transmission Lin
Transmission Link from Uvas release to Llagas recharge to Church Pond	0	1,014.20	248	6,017.40	3,841.10	2,189.10	1,834.80	3,865.30	3,492.20	3,518.80	198,005.40
Transmission Link from anderson release to butterfield to Butterfield	0.00	196	331.30	1,215.20	863.00	0	0	1,125.50	905.90	331.30	70,727.40
Transmission Link from anderson release to madronne to Madrone Ponds	7,888.80	0	0.00	2,530.00	0.00	0	0	825.80	1,000.00	2,103.80	123,434.20
Transmission Link from lex pl 1 to Rinconanda WTP	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 10 to NC IWRP recharge	0	0	0	0	0	0	0	0	0	0	0

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Transmission Link from lex pl 2 to San Tomas Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 3 to Wildcat Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 4 to Saratoga Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 5 to Rodeo Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 6 to Calabazas Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 7 to Regnart Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 8 to Mcclellan Pond recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 9 to Stevens Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local 2 coyote pond recharge to Coyote Pond Rec	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transmission Link from local 2 guad creek to Guadalupe creek	5,618.30	242.2	7,081.00	2,604.20	1,077.50	2,046.60	1,774.50	3,513.50	4,360.70	5,127.80	417,553.80
Transmission Link from local 2 lower coyote recharge to lower coyote r	1,460.00	502.2	1,389.80	1,460.00	1,092.00	429.5	574.7	856	1,092.00	1,460.00	115,319.40
Transmission Link from local 2 overfelt to Overfelt Ponds	0	0	0.00	0	0	0	0	0	0	0	0.00
Transmission Link from local 2 pen ponds to Penitencia Ponds	0	0	0.00	0	0	0	0	0	0	0	0.00
Transmission Link from local 2 upper coyote to NC Upper Coyote Recharg	171.7	53.8	0	146.9	134.9	45.9	64.3	111.3	134.9	127.5	9,604.80
Transmission Link from local Chesbro release to recharge to Church Pon	0.00	195.90	5,708.00	1,282.60	383.00	243.30	744.80	2,266.20	3,807.80	3,781.20	355,048.00
Transmission Link from local Uvas release to recharge to Uvas Recharge	10,117.80	1,044.40	0.00	5,100.50	2,399.40	7,003.50	5,187.40	8,713.50	10,117.80	4,241.20	340,074.00
Transmission Link from local alamitos creek to Alamitos Creek recharge	1,106.50	72.60	2,063.40	776.40	332.70	633.00	548.8	955.00	1,285.50	1,291.40	118,857.80
Transmission Link from local anderson 2 coyote ponds to NC Coyote Pond	10,233.10	2,149.40	10,423.80	10,950.00	5,260.70	303.6	782	4,242.70	4,467.40	10,950.00	806,309.30
Transmission Link from local anderson release to main ave ponds to Mai	2,122.80	0	0	1,012.60	0	0	0	374.8	436.6	566.10	40,234.30
Transmission Link from local anderson res to Church Pond and Llagas Re	0	0	0	0	0	0	0	0	0	0	0.00
Transmission Link from local anderson res to Lower Llagas Recharge	0.00	0	0.00	0	0	0	0	0	0.00	0.00	0.00
Transmission Link from local calabasas creek to Calabazas Creek Rechar	1,149.00	236	1,366.10	141	353	200	50	374.4	1,015.20	1,869.00	72,191.50
Transmission Link from local calero creek to Calero Creek recharge	724.00	31.2	868.70	335.60	138.8	263.70	228.70	452.80	557.00	660.80	53,497.20
Transmission Link from local guadalupe 1 to Los Capitancillos Ponds	2,141.90	23	2,706.20	941.20	444.3	844.00	731.80	1,209.10	1,491.70	1,975.40	154,384.20
Transmission Link from local guadaupe 2 to Almaden and Guadalupe Pond	6,371.30	524.3	0.00	3,034.10	2,332.60	4,430.80	3,841.70	7,606.50	9,440.60	7,279.50	546,075.30
Transmission Link from local lg creek diversion to Los Gatos Ck rechar	0.00	0.00	5,559.40	2,608.50	44.00	473.70	0.00	496.00	1,440.00	2,153.30	245,123.30
Transmission Link from local lg pond diversion to Los Gatos Ponds	4,757.30	4,005.90	0.00	9,722.80	4,664.00	4,375.90	3,163.10	5,442.50	10,569.80	9,288.80	914,787.40
Transmission Link from local lower Llagas recharge to Lower Llagas Rec	2,980.30	98.7	0.00	136.90	0	240.9	737.40	2,243.60	3,769.70	0.00	91,272.20
Transmission Link from local penitencia creek to Penitencia Creek Rech	1,335.80	164	0	427	334	484	227	410	747	652.00	51,008.10
Transmission Link from local regnart creek to Regnart Creek Recharge	276.7	14	343.8	15	20	4	1	73.3	189.4	451.7	16,953.70
Transmission Link from local release 2 ford ponds to Ford Pond Recharg	0.00	0.00	0.00	0.00	0.00	0	0	0.00	0.00	0.00	0.00
Transmission Link from local release 2 upper coyote to Coyote Upper Re	15,284.40	2,455.20	11,456.30	15,768.70	3,886.40	514.3	0	6,094.40	6,767.60	14,283.70	1,097,165.80
Transmission Link from local rodeo creek to Rodeo Creek Recharge	67.6	2	126.00	2	3	0	0	16	50	178.7	5,041.90
Transmission Link from local ross creek recharge to Ross Creek Recharg	863.8	290	1,137.20	487	421	364	364	517	633	888	57,745.60
Transmission Link from local san tomoa creek to San Tomas Creek Rechar	691.4	188.5	769.7	299.1	271.5	170.3	233.9	311.8	388.5	771.9	48,689.40
Transmission Link from local saratoga div to NC IWRP recharge	0.00	0	0.00	0.00	0	0.00	0	0	0.00	0.00	0.00
Transmission Link from local saratogo creek to Saratoga Creek Recharge	2,683.40	648	3,355.30	1,133.00	593	1,203.20	981	958.2	1,846.00	3,512.20	184,520.70
Transmission Link from local silver creek to Silver Creek Recharge	722.40	85	694.90	715.00	331.00	93.00	262.00	58.00	103.00	730.00	52,988.50
Transmission Link from local stevens creek to Stevens Creek Recharge	2,561.20	599.6	3,474.60	3,650.00	2,484.30	1,437.40	1,362.20	2,691.50	3,631.60	3,650.00	272,990.80
Transmission Link from local thompson creek to Thompson Creek Recharg	750.7	47	1,037.40	617	362	52	178	32	109	927	54,031.80
Transmission Link from local wildcat creek to Wildcat Creek Recharge	443.50	122.50	500.30	194.40	176.50	110.70	152.10	202.70	252.50	484.10	30,452.80
Sum	82,523.60	15,005.50	60,641.20	73,324.10	32,243.70	28,156.40	24,025.00	56,039.30	74,102.50	83,255.00	6,544,088.50
demand_reduction_fctr	0.00	0.00	0.00	0.00	0.00	0.00	-0.05	-0.19	-0.25	0.00	

Initial Strategy 4 Treated WQ

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Groundwater Storage (Acre-foot)	Groundwater	Groundwater	Groundwater S	Groundwater S	Groundwater S	Groundwater	Groundwate	Groundwater	Groundwater	Groundwater Storage (Acre-foot	
Coyote Subbasin	19795.5	8626.3	22692.8	22822.7	11641.9	0.0	0.0	0.0	1350.1	23564.1	
LlagasSubbasin	80063.0	123181.3	148262.4	142131.7	128985.3	120061.1	112912.1	120140.9	138627.4	146016.5	
North County Santa Clara Sbb	278073.4	188737.4	328694.6	296484.0	220666.3	163573.0	38830.3	1490.5	58394.4	323230.1	
Sum	377931.9	320544.9	499649.8	461438.4	361293.5	283634.1	151742.4	121631.3	198371.9	492810.7	
Reservoir Storage Volume (Acre-foot)	Reservoir Stor	Reservoir Stor	Reservoir Stora	Reservoir Stora	Reservoir Stora	Reservoir Stor	Reservoir St	Reservoir Stor	Reservoir Stor	Reservoir Storage Volume (Acre-	
Almaden Reservoir	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	351.0	
Anderson Reservoir	22000.0	22000.0	69864.0	33514.3	21939.3	21954.3	21550.4	22000.0	22000.0	55131.9	
Calero Reservoir	1000.0	693.5	5600.0	1000.0	932.6	1000.0	1000.0	993.9	2233.3	4457.5	
Chesbro Reservoir	500.0	500.0	4586.0	500.0	436.5	451.7	500.0	499.1	664.3	4586.0	
Coyote Reservoir	1000.0	1000.0	5200.0	5200.0	997.2	993.7	910.4	1000.0	1000.0	5200.0	
Guadalupe Reservoir	200.0	168.9	1188.0	200.0	200.0	200.0	200.0	200.0	200.0	1188.0	
Lexington Reservoir	1475.3	685.8	16000.0	3429.8	1031.8	458.8	192.7	1817.6	3993.0	9395.4	
Pacheco Reservoir	5000.0	73120.0	79000.0	77040.0	75080.0	70376.0	65672.0	60968.0	56264.0	78638.7	
Stevens Creek Reservoir	31.0	181.5	2368.0	583.6	31.0	31.0	31.0	31.0	1609.5	2368.0	
Uvas Reservoir	2703.9	2303.8	5987.7	500.0	500.0	500.0	500.0	500.0	4464.1	6258.0	
cvp caryover	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
cvp overflow not used	0.0	9489.5	138950.2	138950.2	138950.2	138950.2	138950.2	138950.2	138950.2	139318.7	
semitropic reservoir	242493.3	22926.9	68218.9	50541.1	11204.5	0.0	0.0	0.0	0.0	91071.4	
swp caryyover	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
swp overflow not used	0.0	0.0	45263.0	45263.0	45263.0	45263.0	45263.0	45263.0	45263.0	45263.0	
Sum	276603.5	133270.0	442425.7	356921.9	296766.1	280378.7	274969.8	272422.8	276841.3	443227.5	
Groundwater Natural Recharge (Acre-foot)	Groundwater	Groundwater	Groundwater N	Groundwater N	Groundwater N	Groundwater	Groundwate	Groundwater	Groundwater	Groundwater N	Groundwater Na
Coyote Subbasin	2535.0	1326.9	5335.0	1838.8	1544.9	1101.9	1457.8	2541.2	3273.6	2141.8	183393.1
LlagasSubbasin	24664.6	19659.9	33521.4	20971.2	20239.6	19330.3	21198.0	22272.2	21962.7	22365.9	1888278.1
North County Santa Clara Sbb	39177.8	26853.8	56312.9	30423.5	26962.8	27176.6	25998.0	24763.5	29247.2	34205.1	2881697.9
Sum	66377.4	47840.6	95169.3	53233.5	48747.3	47608.8	48653.8	49576.9	54483.5	58712.8	4953369.1
Transmission Link Flow (Acre-foot)	Transmission	Transmission	Transmission Li	Transmission Li	Transmission Li	Transmission	Transmission	Transmission	Transmission	Transmission Li	Transmission Lin
Transmission Link from lake elsman to sjw west to SJ Water Company	12613.8	1362.0	14943.8	3997.9	3455.9	6503.9	3720.9	6431.9	3455.9	7405.9	815457.0
Transmission Link from stanford water to Stanford Moffett Field Ames	823.0	64.0	692.0	187.0	160.0	303.0	174.0	296.0	160.0	681.0	51733.2
Sum	13436.8	1426.0	15635.8	4184.9	3615.9	6806.9	3894.9	6727.9	3615.9	8086.9	867190.3
Transmission Link Flow (Acre-foot)	Transmission	Transmission	Transmission Li	Transmission Li	Transmission Li	Transmission	Transmission	Transmission	Transmission	Transmission Li	Transmission Lin
Transmission Link from SCRWA to Morgan Hill to Morgan Hill Service Are	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from deliver recycled to gilroy to Gilroy Service Ar	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	131196.6
Transmission Link from hecker pass recycled to Gilroy Service Area	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from morgan hill recycled to Morgan Hill Service Are	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from recycle pa to palo alto to Palo Alto Service Ar	1055.7	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	69136.2
Transmission Link from recycle sv to sunnyvale to Sunnyvale Service Ar	1900.0	1900.0	1900.0	1900.0	1900.0	1900.0	1900.0	1900.0	1900.0	1900.0	155797.7
Transmission Link from recycled 1 to Llagas Ag	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	98400.0
Transmission Link from recycled SB to SJWC to SJ Water Company	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	0.0	3041.7	241218.0
Transmission Link from recycled SB to santa clara to Santa Clara Servi	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	383760.0
Transmission Link from recycled pa to mountain view to Mountain View S	994.2	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	98961.3

Initial Strategy 4 Treated WQ

	1922	**1977**	**1983**	**1987**	**1988**	**1989**	**1990**	**1991**	**1992**	**2002**	**Sum**
Transmission Link from recycled sb to milpitas to Milpitas Service Are	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	172692.0
Transmission Link from recycled sb to sj muni north to SJ Muni North	9500.4	9839.7	9839.7	9839.7	9839.7	9839.7	9839.7	9839.7	8012.7	9839.7	804689.1
Transmission Link from recycled sb to sjMuni edenvale to SJ Muni servi	4071.6	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	306387.9
Sum	30149.6	30149.6	30149.6	30149.6	30149.6	30149.6	30149.6	30149.6	25280.9	30149.6	2462238.8
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission Li	Transmission Li	Transmission Li	Transmission L	Transmission	Transmission L	Transmission L	Transmission Li	Transmission Lin
Transmission Link from hh to PHills to Purisma Hills Service Area	1828.0	1828.0	1828.0	1828.0	1828.0	1516.0	1516.0	1516.0	1516.0	1828.0	147200.7
Transmission Link from hh to Sunnyvale to Sunnyvale Service Area	13249.0	13249.0	13249.0	13249.0	13249.0	10988.0	10988.0	10988.0	10988.0	13249.0	1066882.9
Transmission Link from hh to milpitas service area to Milpitas Service	8451.0	8451.0	8451.0	8451.0	8451.0	7008.8	7008.8	7008.8	6890.2	8451.0	680402.7
Transmission Link from hh to moffett ames to Stanford Moffett Field Am	3395.0	3395.0	3395.0	3395.0	3395.0	2815.6	2815.6	2815.6	2815.6	3395.0	273384.2
Transmission Link from hh to mountain view to Mountain View Service Ar	14487.4	14407.8	14407.8	14407.8	14407.8	12120.0	12120.0	11726.7	7165.5	14407.8	1148622.9
Transmission Link from hh to palo alto to Palo Alto Service Area	14295.5	14397.2	14397.2	14397.2	14397.2	12121.7	12121.7	11741.0	7314.0	14397.2	1147884.0
Transmission Link from hh to santa clara to Santa Clara Service Area	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from hh to sj muni n to SJ Muni North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sum	55705.9	55728.0	55728.0	55728.0	55728.0	46570.3	46570.3	45796.3	36689.4	55728.0	4464377.4
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission Li	Transmission Li	Transmission Li	Transmission L	Transmission	Transmission L	Transmission L	Transmission Li	Transmission Lin
Transmission Link from local stevens creek flood release to Tributary	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from local uvas flood release to Tributary Inflow 5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from release from anderson to cvp pl to Anderson PL	420.5	5880.4	61555.3	8066.5	8354.9	344.8	442.7	4730.9	7088.6	971.2	752333.2
Transmission Link from release from calero to cvp pl to Calero PL rele	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from release from pacheco to Tributary Inflow 6	0.0	4704.0	0.0	1960.0	3920.0	4704.0	4704.0	4704.0	4704.0	361.3	135100.0
Sum	420.5	10584.4	61555.3	10026.5	12274.9	5048.8	5146.7	9434.9	11792.6	1332.5	887433.2
Streamflow (below node or reach listed) (All Rivers) (Acre-foot)	Streamflow (b	Streamflow (b	Streamflow (be	Streamflow (be	Streamflow (be	Streamflow (b	Streamflow (	Streamflow (b	Streamflow (b	Streamflow (be	Streamflow (belo
SWP 1 Supply 0 \ Headflow	61999.1	10999.8	96998.6	29999.6	29999.6	56999.2	21999.7	27999.6	23999.6	63999.1	4939927.4
cvp 0 source supply 0 \ Headflow	121128.4	69175.9	152497.8	94555.5	64999.0	100323.6	64999.0	75023.6	81706.6	108114.6	8991576.1
Demand Site Inflows and Outflows (Demand Site: NC Coyote Pond Recharge	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from IPR Coyote	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Inflow from Lower Coyote Creek	10233.1	1770.0	10950.0	10950.0	5089.0	303.6	782.0	4567.9	4705.1	10950.0	811793.4
Inflow from cvp 3 santa clara conduit	390.4	0.0	0.0	0.0	0.0	268.6	0.0	0.0	0.0	0.0	1365.0
Outflow to North County Santa Clara Sbb	-10623.5	-1770.0	-10950.0	-10950.0	-5089.0	-572.2	-782.0	-4567.9	-4705.1	-10950.0	-813158.4
Sum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Demand Site Inflows and Outflows (Demand Site: Ford Pond Recharge) (Acr	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from IPR Coyote	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Inflow from Lower Coyote Creek	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Outflow to North County Santa Clara Sbb	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Demand Site Inflows and Outflows (Demand Site: Los Gatos Ponds) (Acre-fo	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from IPR LG Ponds	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Inflow from Los Gatos Creek	4757.3	3731.7	3977.2	9820.4	3880.9	4084.1	3149.5	5321.0	9576.0	11023.0	1032449.6
Inflow from SWP 3 central pipeline	0.0	211.9	0.0	213.9	989.1	0.0	0.0	0.0	0.0	4758.5	57379.8
Inflow from cvp 7 central pl	16843.6	1143.7	0.0	1864.7	2730.2	5873.3	0.0	0.0	0.0	6013.6	285249.0

Initial Strategy 4 Treated WQ

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Outflow to North County Santa Clara Sbb	-21600.9	-5087.2	-3977.2	-11899.0	-7600.1	-9957.5	-3149.5	-5321.0	-9576.0	-21795.2	-1375078.4
Sum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Demand Site Inflows and Outflows (Demand Site: Almaden and Guadalupe I	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from Guadalupe Creek	6,371.30	385.6	1,342.00	3,108.90	1,644.20	3,113.80	2,701.40	5,176.90	6,079.70	6,259.10	441,070.00
Inflow from IPR Guadalupe	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inflow from SWP 4 almaden valley pipeline	126.80	227.3	0.00	1,122.00	0.00	71.00	0.00	0.00	0.00	667.30	10,531.50
Inflow from cvp 5 almaden valley pl	262.10	227.30	0.00	2,834.30	381.50	0.00	0.00	0.00	0.00	680.40	31,330.10
Outflow to North County Santa Clara Sbb	-6,760.20	-840.20	-1,342.00	-7,065.20	-2,025.80	-3,184.90	-2,701.40	-5,176.90	-6,079.70	-7,606.90	-482,931.50
Sum	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demand Site Inflows and Outflows (Demand Site: Kooser) (Acre-foot)	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from IPR Guadalupe	0.00	0	0.00	0.00	0	0	0	0	0	0.00	0.00
Inflow from SWP 4 almaden valley pipeline	47.00	49.6	97.60	436.80	0	128.7	0	0	0	584.00	14,243.10
Inflow from cvp 5 almaden valley pl	245.8	49.6	97.6	863.8	283.2	43	0	148.8	238.6	584.00	46,702.80
Outflow to North County Santa Clara Sbb	-292.80	-99.2	-195.20	-1,300.60	-283.2	-171.7	0	-148.8	-238.6	-1,168.00	-60,945.90
Sum	0.00	0	0.00	0.00	0	0	0	0	0	0.00	0.00
Demand Site Inflows and Outflows (Demand Site: Los Capitancillos Ponds) (/	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from Guadalupe Creek	2,141.90	23	2,846.60	997.80	597.9	1,132.30	982.30	1,365.50	1,681.70	1,982.40	165,633.90
Inflow from IPR Guadalupe	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inflow from SWP 4 almaden valley pipeline	46.10	82.7	0.00	458.10	0	25.80	0	0.00	0.00	339.30	8,967.40
Inflow from cvp 5 almaden valley pl	95.30	82.7	0.00	1,113.30	138.70	0.00	0.00	0.00	0.00	408.00	22,012.50
Outflow to North County Santa Clara Sbb	-2,283.30	-188.3	-2,846.60	-2,569.20	-736.60	-1,158.10	-982.30	-1,365.50	-1,681.70	-2,729.60	-196,613.70
Sum	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demand Site Inflows and Outflows (Demand Site: Overfelt Ponds) (Acre-foo	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from IPR Penitencia	0	0	0.00	0	0	0	0	0	0	0	0.00
Inflow from Penitencia Creek	0	0	0.00	0.00	0	0	0	0	0	0	0.00
Inflow from SWP 2 SBA pipeline	450.7	155.1	1,460.00	1,460.00	432.4	429.4	0	124	309.8	1,460.00	88,156.30
Outflow to North County Santa Clara Sbb	-450.7	-155.1	-1,460.00	-1,460.00	-432.4	-429.40	0	-124	-309.8	-1,460.00	-88,156.30
Sum	0	0	0.00	0.00	0	0.00	0	0	0	0.00	0.00
Demand Site Inflows and Outflows (Demand Site: Penitencia Ponds) (Acre-fo	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from IPR Penitencia	0	0	0.00	0	0	0	0	0	0	0	0.00
Inflow from Penitencia Creek	0	0	0.00	0.00	0.00	0	0	0	0	0	0.00
Inflow from SWP 2 SBA pipeline	766.20	263.70	2,482.00	2,482.00	735.10	730.00	0	210.8	526.6	2,482.00	149,865.70
Outflow to North County Santa Clara Sbb	-766.20	-263.70	-2,482.00	-2,482.00	-735.10	-730.00	0.00	-210.80	-526.60	-2,482.00	-149,865.70
Sum	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transmission Link Flow (Acre-foot)	Transmission I	Transmission I	Transmission Li	Transmission Li	Transmission Li	Transmission I	Transmission	Transmission I	Transmission I	Transmission Li	Transmission Lin
Transmission Link from Uvas release to Llagas recharge to Church Pond	0	739.00	191.9	4,860.60	2,444.50	2,189.10	1,834.80	3,506.70	3,388.30	3,518.80	186,101.50
Transmission Link from anderson release to butterfield to Butterfield	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transmission Link from anderson release to madronne to Madrone Ponds	7,888.80	811.2	412.50	2,530.00	0.00	0	0	1,000.00	1,000.00	1,677.50	127,056.80
Transmission Link from lex pl 1 to Rinconanda WTP	0.00	0	0	0.00	0	0	0	0.00	0.00	0.00	0.00
Transmission Link from lex pl 10 to NC IWRP recharge	0	0	0	0	0	0	0	0	0	0	0

Initial Strategy 4 Treated WQ

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Transmission Link from lex pl 2 to San Tomas Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 3 to Wildcat Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 4 to Saratoga Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 5 to Rodeo Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 6 to Calabazas Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 7 to Regnart Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 8 to Mcclellan Pond recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 9 to Stevens Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local 2 coyote pond recharge to Coyote Pond Rec	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transmission Link from local 2 guad creek to Guadalupe creek	5,618.30	340	7,081.00	2,741.50	1,449.90	2,745.80	2,382.20	4,565.10	5,361.20	5,519.40	468,511.30
Transmission Link from local 2 lower coyote recharge to lower coyote r	1,460.00	393.5	1,460.00	1,460.00	1,092.00	429.50	574.70	856.00	1,092.00	1,460.00	115,376.30
Transmission Link from local 2 overfelt to Overfelt Ponds	0.00	0	0.00	0.00	0.00	0	0	0	0.00	0.00	0.00
Transmission Link from local 2 pen ponds to Penitencia Ponds	0	0	0.00	0	0	0	0	0	0	0	0.00
Transmission Link from local 2 upper coyote to NC Upper Coyote Recharg	171.7	41	24.40	171.7	134.9	45.9	64.3	111.3	134.9	171.7	11,657.80
Transmission Link from local Chesbro release to recharge to Church Pon	0.00	167.50	5,588.90	1,282.60	383.00	243.30	744.80	2,266.20	3,807.80	3,781.20	357,128.00
Transmission Link from local Uvas release to recharge to Uvas Recharge	10,117.80	1,471.50	831.60	4,243.10	1,768.40	7,003.50	5,187.40	8,713.50	10,117.80	3,381.80	313,295.90
Transmission Link from local alamitos creek to Alamitos Creek recharge	1,106.50	101.70	2,168.60	847.90	447.00	849.20	736.80	1,042.90	1,405.70	1,305.10	129,456.30
Transmission Link from local anderson 2 coyote ponds to NC Coyote Pond	10,233.10	1,770.00	10,950.00	10,950.00	5,089.00	303.60	782	4,567.90	4,705.10	10,950.00	811,793.40
Transmission Link from local anderson release to main ave ponds to Mai	2,122.80	341.10	111.00	886.40	0.00	0	0	500.00	500.00	451.40	47,483.00
Transmission Link from local anderson res to Church Pond and Llagas Re	0.00	0	0	0.00	0	0	0	0	0	0	0.00
Transmission Link from local anderson res to Lower Llagas Recharge	0.00	0	0.00	0	0	0	0	0	0.00	0.00	0.00
Transmission Link from local calabasas creek to Calabazas Creek Rechar	1,149.00	236	1,474.40	141	353	200	50	374.4	1,015.20	1,869.00	72,406.70
Transmission Link from local calero creek to Calero Creek recharge	724.00	43	912.50	353.30	186.8	353.80	307.00	588.30	689.00	711.30	60,215.30
Transmission Link from local guadalupe 1 to Los Capitancillos Ponds	2,141.90	23	2,846.60	997.80	597.9	1,132.30	982.30	1,365.50	1,681.70	1,982.40	165,633.90
Transmission Link from local guadaupe 2 to Almaden and Guadalupe Pond	6,371.30	385.6	1,342.00	3,108.90	1,644.20	3,113.80	2,701.40	5,176.90	6,079.70	6,259.10	441,070.00
Transmission Link from local lg creek diversion to Los Gatos Ck rechar	0.00	263.10	5,840.00	2,359.00	272.50	496.00	41.80	496.00	1,913.40	992.00	240,678.50
Transmission Link from local lg pond diversion to Los Gatos Ponds	4,757.30	3,731.70	3,977.20	9,820.40	3,880.90	4,084.10	3,149.50	5,321.00	9,576.00	11,023.00	1,032,449.60
Transmission Link from local lower Llagas recharge to Lower Llagas Rec	2,980.30	127.20	594.00	136.90	0.00	240.90	737.40	2,243.60	3,769.70	0.00	82,233.80
Transmission Link from local penitencia creek to Penitencia Creek Rech	1,335.80	164	366.00	627	334	484	227	410.00	747.00	1,198.00	67,905.70
Transmission Link from local regnart creek to Regnart Creek Recharge	276.70	14	366.3	15	20	4	1	73.3	189.4	451.70	16,995.90
Transmission Link from local release 2 ford ponds to Ford Pond Recharg	0.00	0.00	0.00	0.00	0.00	0	0	0.00	0.00	0.00	0.00
Transmission Link from local release 2 upper coyote to Coyote Upper Re	15,284.40	1,227.60	10,228.70	15,768.70	3,940.20	514.3	0	6,550.30	7,309.00	15,768.70	1,098,480.10
Transmission Link from local rodeo creek to Rodeo Creek Recharge	67.60	2.00	126.00	2.00	3.00	0	0	16.00	50.00	178.70	5,041.90
Transmission Link from local ross creek recharge to Ross Creek Recharg	863.8	290	1,234.00	487	421	364	364	517	633	888	57,927.10
Transmission Link from local san tomoa creek to San Tomas Creek Rechar	691.4	188.5	822.40	299.1	271.5	170.3	233.9	311.8	388.5	771.9	48,813.60
Transmission Link from local saratoga div to NC IWRP recharge	0.00	0	0.00	0.00	0	0.00	0	0	0.00	0.00	0.00
Transmission Link from local saratogo creek to Saratoga Creek Recharge	2,683.40	648	3,604.40	1,133.00	593	1,203.20	981	958.2	1,846.00	3,512.20	185,108.40
Transmission Link from local silver creek to Silver Creek Recharge	722.40	85	730.00	715.00	331.00	93.00	262.00	58.00	103.00	730.00	53,071.30
Transmission Link from local stevens creek to Stevens Creek Recharge	2,561.20	599.6	3,650.00	3,650.00	2,484.30	1,437.40	1,362.20	2,691.50	3,631.60	3,650.00	273,404.70
Transmission Link from local thompson creek to Thompson Creek Recharg	750.70	47	1,090.00	617.00	362.00	52.00	178.00	32.00	109.00	927.00	54,156.00
Transmission Link from local wildcat creek to Wildcat Creek Recharge	443.50	122.50	534.50	194.40	176.50	110.70	152.10	202.70	252.50	484.10	30,533.50
Sum	82,523.60	14,374.30	68,558.80	70,399.40	28,680.40	27,863.90	24,037.30	54,515.90	71,496.60	83,613.90	6,553,986.30
demand_reduction_fctr	0.00	0.00	0.00	0.00	0.00	0.00	-0.05	-0.19	-0.50	0.00	

Initial Strategy 5 Low Cost

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Groundwater Storage (Acre-foot)	Groundwater	Groundwater	Groundwater S	Groundwater S	Groundwater S	Groundwater	Groundwate	Groundwater	Groundwater	Groundwater Storage (Acre-foot	
Coyote Subbasin	19795.5	8653.4	22719.9	22849.8	11668.9	0.0	0.0	0.0	1182.2	23576.9	
LlagasSubbasin	80063.0	121423.4	145838.9	142653.4	125255.1	110767.9	96938.2	98664.6	108161.6	145617.2	
North County Santa Clara Sbb	278073.4	208618.2	341056.4	301931.6	237453.9	210010.3	112416.6	87294.0	107381.2	332461.3	
Sum	377931.9	338695.0	509615.2	467434.8	374378.0	320778.3	209354.8	185958.6	216725.0	501655.4	
Reservoir Storage Volume (Acre-foot)	Reservoir Stor	Reservoir Stor	Reservoir Stora	Reservoir Stora	Reservoir Stora	Reservoir Stor	Reservoir St	Reservoir Stor	Reservoir Stor	Reservoir Storage Volume (Acre-	
Almaden Reservoir	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	351.0	
Anderson Reservoir	22000.0	22000.0	69864.0	35894.2	21939.3	21954.3	21550.4	22000.0	22000.0	54498.6	
Calero Reservoir	1000.0	697.0	5600.0	1000.0	932.6	1000.0	1000.0	993.9	2233.3	4457.5	
Chesbro Reservoir	500.0	500.0	4586.0	500.0	436.5	451.7	500.0	499.1	664.3	4586.0	
Coyote Reservoir	1000.0	1000.0	5200.0	5200.0	997.2	993.7	910.4	1000.0	1000.0	5200.0	
Guadalupe Reservoir	200.0	168.9	1188.0	200.0	200.0	200.0	200.0	200.0	200.0	1188.0	
Lexington Reservoir	1475.3	727.8	16000.0	4350.6	1291.9	428.0	184.0	1634.7	3076.2	8656.8	
Pacheco Reservoir	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	
Stevens Creek Reservoir	31.0	181.5	2368.0	583.6	31.0	31.0	31.0	31.0	1609.5	2368.0	
Uvas Reservoir	2703.9	2303.8	5987.7	718.3	500.0	500.0	500.0	500.0	4464.1	6258.0	
cvp caryover	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6090.3	
cvp overflow not used	0.0	26978.5	164263.2	164263.2	164263.2	164263.2	164263.2	164263.2	164263.2	170327.8	
semitropic reservoir	242493.3	134257.1	184810.5	181771.6	144971.1	115492.7	79757.3	42711.1	8954.4	106150.2	
swp caryyover	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4508.9	
swp overflow not used	0.0	0.0	45337.5	45337.5	45337.5	45337.5	45337.5	45337.5	45337.5	45337.5	
Sum	276603.5	194014.6	510404.9	445019.0	386100.4	355852.2	319434.0	284370.6	259002.5	424978.7	
Groundwater Natural Recharge (Acre-foot)	Groundwater	Groundwater	Groundwater N	Groundwater N	Groundwater N	Groundwater	Groundwate	Groundwater	Groundwater	Groundwater N	Groundwater Na
Coyote Subbasin	2535.0	1326.9	5335.0	1838.8	1544.9	1101.9	1457.8	2541.2	3273.6	2141.8	183393.1
LlagasSubbasin	24664.6	19659.9	33521.4	20971.2	20239.6	19330.3	21198.0	22272.2	21962.7	22365.9	1888278.1
North County Santa Clara Sbb	39177.8	26853.8	56312.9	30423.5	26962.8	27176.6	25998.0	24763.5	29247.2	34205.1	2881697.9
Sum	66377.4	47840.6	95169.3	53233.5	48747.3	47608.8	48653.8	49576.9	54483.5	58712.8	4953369.1
Transmission Link Flow (Acre-foot)	Transmission	Transmission	Transmission Li	Transmission Li	Transmission Li	Transmission	Transmission	Transmission	Transmission	Transmission Li	Transmission Lin
Transmission Link from lake elsman to sjw west to SJ Water Company	12613.8	4128.0	20418.8	9472.9	7041.6	9736.1	6289.2	10293.0	8776.9	11659.5	1227698.7
Transmission Link from stanford water to Stanford Moffett Field Ames	823.0	64.0	692.0	187.0	160.0	303.0	174.0	296.0	160.0	681.0	51733.2
Sum	13436.8	4192.0	21110.8	9659.9	7201.6	10039.1	6463.2	10589.0	8936.9	12340.5	1279431.9
Transmission Link Flow (Acre-foot)	Transmission	Transmission	Transmission Li	Transmission Li	Transmission Li	Transmission	Transmission	Transmission	Transmission	Transmission Li	Transmission Lin
Transmission Link from SCRWA to Morgan Hill to Morgan Hill Service Are	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from deliver recycled to gilroy to Gilroy Service Ar	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	131196.6
Transmission Link from hecker pass recycled to Gilroy Service Area	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from morgan hill recycled to Morgan Hill Service Are	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from recycle pa to palo alto to Palo Alto Service Ar	1055.8	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	69136.2
Transmission Link from recycle sv to sunnyvale to Sunnyvale Service Ar	1900.0	2400.0	2400.0	2400.0	2400.0	2400.0	2400.0	2400.0	2400.0	2400.0	196297.1
Transmission Link from recycled 1 to Llagas Ag	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	98400.0
Transmission Link from recycled SB to SJWC to SJ Water Company	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	248283.7
Transmission Link from recycled SB to santa clara to Santa Clara Servi	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	383760.0
Transmission Link from recycled pa to mountain view to Mountain View S	994.2	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	98961.3

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Transmission Link from recycled sb to milpitas to Milpitas Service Are	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	172692.0
Transmission Link from recycled sb to sj muni north to SJ Muni North	9500.4	9839.7	9839.7	9839.7	9839.7	9839.7	9839.7	9839.7	9839.7	9839.7	806516.1
Transmission Link from recycled sb to sjMuni edenvale to SJ Muni servi	4071.6	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	306387.9
Sum	30149.6	30649.5	30649.5	30649.5	30649.5	30649.5	30649.5	30649.5	30649.5	30649.5	2511631.0
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission Li	Transmission Li	Transmission Li	Transmission L	Transmissior	Transmission L	Transmission L	Transmission Li	Transmission Lin
Transmission Link from hh to PHills to Purisma Hills Service Area	1828.0	1828.0	1828.0	1828.0	1828.0	1516.0	1516.0	1516.0	1516.0	1828.0	147200.7
Transmission Link from hh to Sunnyvale to Sunnyvale Service Area	13249.0	13249.0	13249.0	13249.0	13249.0	10988.0	10988.0	10988.0	10988.0	13249.0	1066882.9
Transmission Link from hh to milpitas service area to Milpitas Service	8451.0	8451.0	8451.0	8451.0	8451.0	7008.8	7008.8	7008.8	7008.8	8451.0	680521.4
Transmission Link from hh to moffett ames to Stanford Moffett Field Am	3395.0	3395.0	3395.0	3395.0	3395.0	2815.6	2815.6	2815.6	2815.6	3395.0	273384.2
Transmission Link from hh to mountain view to Mountain View Service Ar	14487.4	14167.1	14167.1	14167.1	14167.1	12120.0	12120.0	12006.8	11464.7	14167.1	1139678.2
Transmission Link from hh to palo alto to Palo Alto Service Area	14295.5	14397.2	14397.2	14397.2	14397.2	12121.7	12121.7	12108.8	11741.0	14397.2	1157172.3
Transmission Link from hh to santa clara to Santa Clara Service Area	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from hh to sj muni n to SJ Muni North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sum	55705.9	55487.3	55487.3	55487.3	55487.3	46570.3	46570.3	46444.1	45534.3	55487.3	4464839.8
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission Li	Transmission Li	Transmission Li	Transmission L	Transmissior	Transmission L	Transmission L	Transmission Li	Transmission Lin
Transmission Link from local stevens creek flood release to Tributary	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from local uvas flood release to Tributary Inflow 5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from release from anderson to cvp pl to Anderson PL	420.5	7379.1	61306.8	5983.8	9973.3	344.8	442.7	4685.8	7025.2	971.2	711883.7
Transmission Link from release from calero to cvp pl to Calero PL rele	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from release from pacheco to Tributary Inflow 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sum	420.5	7379.1	61306.8	5983.8	9973.3	344.8	442.7	4685.8	7025.2	971.2	711883.7
Streamflow (below node or reach listed) (All Rivers) (Acre-foot)	Streamflow (b	Streamflow (b	Streamflow (be	Streamflow (be	Streamflow (be	Streamflow (b	Streamflow (	Streamflow (b	Streamflow (b	Streamflow (be	Streamflow (bel
SWP 1 Supply 0 \ Headflow	61999.1	10999.8	96998.6	29999.6	29999.6	56999.2	21999.7	27999.6	23999.6	63999.1	4939927.4
cvp 0 source supply 0 \ Headflow	121128.4	69435.9	152497.8	96365.5	64999.0	102493.6	64999.0	75633.6	82726.6	111324.6	9123854.1
Demand Site Inflows and Outflows (Demand Site: NC Coyote Pond Recharge	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from IPR Coyote	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Inflow from Lower Coyote Creek	10233.1	1770.0	9728.9	10950.0	5372.7	303.6	782.0	4242.7	4467.4	10950.0	800520.5
Inflow from cvp 3 santa clara conduit	390.4	0.0	0.0	0.0	0.0	930.0	0.0	0.0	864.9	0.0	4543.8
Outflow to North County Santa Clara Sbb	-10623.5	-1770.0	-9728.9	-10950.0	-5372.7	-1233.6	-782.0	-4242.7	-5332.3	-10950.0	-805064.3
Sum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Demand Site Inflows and Outflows (Demand Site: Ford Pond Recharge) (Acr	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from IPR Coyote	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Inflow from Lower Coyote Creek	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Outflow to North County Santa Clara Sbb	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Demand Site Inflows and Outflows (Demand Site: Los Gatos Ponds) (Acre-fo	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from IPR LG Ponds	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Inflow from Los Gatos Creek	4757.3	1315.5	0.0	5319.6	1198.2	1317.6	600.9	1661.0	5494.5	6545.3	519470.1
Inflow from SWP 3 central pipeline	0.0	692.2	0.0	1579.3	1201.2	0.0	426.6	468.9	0.0	4439.7	85335.6
Inflow from cvp 7 central pl	16843.6	1399.5	0.0	1662.6	4525.5	10581.4	2646.2	8341.6	5758.1	5259.5	347365.7

Initial Strategy 5 Low Cost

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Outflow to North County Santa Clara Sbb	-21600.9	-3407.2	0.0	-8561.5	-6924.9	-11899.0	-3673.6	-10471.5	-11252.6	-16244.4	-952171.3
Sum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Demand Site Inflows and Outflows (Demand Site: Almaden and Guadalupe	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from Guadalupe Creek	6,371.30	385.6	0.00	2,945.70	1,644.20	3,113.80	2,701.40	5,176.90	6,079.70	5,469.50	322,932.80
Inflow from IPR Guadalupe	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inflow from SWP 4 almaden valley pipeline	126.80	227.3	0.00	894.70	403.50	0.00	0.00	0.00	0.00	447.30	12,403.90
Inflow from cvp 5 almaden valley pl	262.10	432.70	0.00	1,440.30	432.70	1,269.90	0.00	0.00	0.00	550.00	28,319.00
Outflow to North County Santa Clara Sbb	-6,760.20	-1,045.60	0.00	-5,280.70	-2,480.40	-4,383.70	-2,701.40	-5,176.90	-6,079.70	-6,466.80	-363,655.70
Sum	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demand Site Inflows and Outflows (Demand Site: Kooser) (Acre-foot)	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from IPR Guadalupe	0.00	0	0.00	0.00	0	0	0	0	0	0.00	0.00
Inflow from SWP 4 almaden valley pipeline	47.00	49.6	0.00	392.00	144	0	0	0	0	486.40	11,402.10
Inflow from cvp 5 almaden valley pl	245.8	94.4	0	540.8	144	450.1	0	292.8	576	486.40	34,674.00
Outflow to North County Santa Clara Sbb	-292.80	-144	0.00	-932.80	-288	-450.1	0	-292.8	-576	-972.80	-46,076.10
Sum	0.00	0	0.00	0.00	0	0	0	0	0	0.00	0.00
Demand Site Inflows and Outflows (Demand Site: Los Capitancillos Ponds) (	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from Guadalupe Creek	2,141.90	23	2,520.90	1,184.80	597.9	1,132.30	982.30	1,365.50	1,681.70	2,007.60	172,137.60
Inflow from IPR Guadalupe	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inflow from SWP 4 almaden valley pipeline	46.10	82.7	0.00	525.10	146.7	0.00	0	0.00	0.00	339.30	9,039.70
Inflow from cvp 5 almaden valley pl	95.30	157.3	0.00	727.70	157.30	461.80	0.00	0.00	0.00	408.00	18,225.30
Outflow to North County Santa Clara Sbb	-2,283.30	-263	-2,520.90	-2,437.50	-902.00	-1,594.10	-982.30	-1,365.50	-1,681.70	-2,754.90	-199,402.60
Sum	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demand Site Inflows and Outflows (Demand Site: Overfelt Ponds) (Acre-foo	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from IPR Penitencia	0	0	0.00	0	0	0	0	0	0	0	0.00
Inflow from Penitencia Creek	0	0	0.00	0.00	0	0	0	0	0	0	0.00
Inflow from SWP 2 SBA pipeline	450.7	236	1,460.00	1,460.00	502.1	1,181.80	64.5	477.4	696.8	1,460.00	98,034.20
Outflow to North County Santa Clara Sbb	-450.7	-236	-1,460.00	-1,460.00	-502.1	-1,181.80	-64.5	-477.4	-696.8	-1,460.00	-98,034.20
Sum	0	0	0.00	0.00	0	0.00	0	0	0	0	0.00
Demand Site Inflows and Outflows (Demand Site: Penitencia Ponds) (Acre-f	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from IPR Penitencia	0	0	0.00	0	0	0	0	0	0	0	0.00
Inflow from Penitencia Creek	0	0	0.00	0.00	0.00	0	0	0	0	0	0.00
Inflow from SWP 2 SBA pipeline	766.20	401.2	2,482.00	2,482.00	853.60	2,009.00	109.6	811.6	1184.6	2,482.00	166,658.10
Outflow to North County Santa Clara Sbb	-766.20	-401.20	-2,482.00	-2,482.00	-853.60	-2,009.00	-109.60	-811.60	-1,184.60	-2,482.00	-166,658.10
Sum	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission Li	Transmission Li	Transmission Li	Transmission L	Transmission	Transmission L	Transmission L	Transmission Li	Transmission Lin
Transmission Link from Uvas release to Llagas recharge to Church Pond	0	1,069.50	253.9	5,280.40	2,662.80	2,189.10	1,834.80	3,506.70	3,388.30	3,518.80	192,407.10
Transmission Link from anderson release to butterfield to Butterfield	0.00	196.00	331.30	408.20	450.00	0.00	0.00	1,050.70	905.90	331.30	79,134.80
Transmission Link from anderson release to madronne to Madrone Ponds	7,888.80	0	0.00	2,103.80	0.00	0	0	884.80	1,000.00	1,677.50	139,184.00
Transmission Link from lex pl 1 to Rinconanda WTP	0.00	0	0	0.00	0	0	0	0.00	0.00	0.00	0.00
Transmission Link from lex pl 10 to NC IWRP recharge	0	0	0	0	0	0	0	0	0	0	0

Initial Strategy 5 Low Cost

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Transmission Link from lex pl 2 to San Tomas Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 3 to Wildcat Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 4 to Saratoga Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 5 to Rodeo Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 6 to Calabazas Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 7 to Regnart Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 8 to Mcclellan Pond recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 9 to Stevens Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local 2 coyote pond recharge to Coyote Pond Rec	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transmission Link from local 2 guad creek to Guadalupe creek	5,618.30	340	7,081.00	4,324.20	1,449.90	2,745.80	2,382.20	4,565.10	5,361.20	6,006.50	485,111.50
Transmission Link from local 2 lower coyote recharge to lower coyote r	1,460.00	348.2	1,297.20	1,460.00	1,092.00	429.50	574.70	856.00	1,092.00	1,460.00	114,733.30
Transmission Link from local 2 overfelt to Overfelt Ponds	0.00	0	0.00	0.00	0.00	0	0	0	0.00	0.00	0.00
Transmission Link from local 2 pen ponds to Penitencia Ponds	0	0	0.00	0	0	0	0	0	0	0	0.00
Transmission Link from local 2 upper coyote to NC Upper Coyote Recharg	171.7	35.4	0.00	133.1	134.9	45.9	64.3	111.3	134.9	139.3	8,675.50
Transmission Link from local Chesbro release to recharge to Church Pon	0.00	195.90	5,848.50	1,383.60	383.00	243.30	744.80	2,266.20	3,807.80	3,781.20	350,673.20
Transmission Link from local Uvas release to recharge to Uvas Recharge	10,117.80	979.10	0.00	3,556.90	1,768.40	7,003.50	5,187.40	8,713.50	10,117.80	3,381.80	347,008.80
Transmission Link from local alamitos creek to Alamitos Creek recharge	1,106.50	101.70	1,924.40	902.60	447.00	849.20	736.80	1,042.90	1,405.70	1,322.20	133,584.40
Transmission Link from local anderson 2 coyote ponds to NC Coyote Pond	10,233.10	1,770.00	9,728.90	10,950.00	5,372.70	303.60	782	4,242.70	4,467.40	10,950.00	800,520.50
Transmission Link from local anderson release to main ave ponds to Mai	2,122.80	0.00	0.00	566.10	0.00	0	0	390.70	436.60	451.40	45,751.60
Transmission Link from local anderson res to Church Pond and Llagas Re	0.00	0	0	0	0	0	0	0	0	0.00	0.00
Transmission Link from local anderson res to Lower Llagas Recharge	0.00	0	0.00	0	0	0	0	0	0.00	0.00	0.00
Transmission Link from local calabasas creek to Calabazas Creek Rechar	1,149.00	236	1,246.60	141	353	200	50	374.4	1,015.20	1,869.00	71,658.30
Transmission Link from local calero creek to Calero Creek recharge	724.00	43	810.70	557.20	186.8	353.80	307.00	588.30	689.00	774.00	62,022.40
Transmission Link from local guadalupe 1 to Los Capitancillos Ponds	2,141.90	23	2,520.90	1,184.80	597.9	1,132.30	982.30	1,365.50	1,681.70	2,007.60	172,137.60
Transmission Link from local guadaupe 2 to Almaden and Guadalupe Pond	6,371.30	385.6	0.00	2,945.70	1,644.20	3,113.80	2,701.40	5,176.90	6,079.70	5,469.50	322,932.80
Transmission Link from local lg creek diversion to Los Gatos Ck rechar	0.00	0.00	5,188.70	2,761.90	0.00	321.20	0.00	496.00	1,440.00	1,581.80	257,089.20
Transmission Link from local lg pond diversion to Los Gatos Ponds	4,757.30	1,315.50	0.00	5,319.60	1,198.20	1,317.60	600.90	1,661.00	5,494.50	6,545.30	519,470.10
Transmission Link from local lower Llagas recharge to Lower Llagas Rec	2,980.30	98.70	0.00	35.80	0.00	240.90	737.40	2,243.60	3,769.70	0.00	94,732.30
Transmission Link from local penitencia creek to Penitencia Creek Rech	1,335.80	164	0	390	334	484	227	410.00	747.00	832.00	47,489.30
Transmission Link from local regnart creek to Regnart Creek Recharge	276.70	14	313.1	15	20	4	1	73.3	189.4	451.70	16,826.50
Transmission Link from local release 2 ford ponds to Ford Pond Recharg	0.00	0.00	0.00	0.00	0.00	0	0	0.00	0.00	0.00	0.00
Transmission Link from local release 2 upper coyote to Coyote Upper Re	15,284.40	2,336.40	10,228.70	15,768.70	3,940.20	514.3	0	6,094.40	6,767.60	15,768.70	1,086,422.30
Transmission Link from local rodeo creek to Rodeo Creek Recharge	67.60	2.00	126.00	2.00	3.00	0	0	16.00	50.00	178.70	5,041.90
Transmission Link from local ross creek recharge to Ross Creek Recharg	863.8	290	1,040.40	487	421	364	364	517	633	888	57,304.70
Transmission Link from local san tomoa creek to San Tomas Creek Rechar	691.4	188.5	700.20	299.1	271.5	170.3	233.9	311.8	388.5	771.9	48,378.00
Transmission Link from local saratoga div to NC IWRP recharge	0.00	267.8	2,365.50	468.20	245	519.00	405.4	524	1,050.20	2,004.90	104,584.70
Transmission Link from local saratogo creek to Saratoga Creek Recharge	2,683.40	380.2	2,780.90	664.80	348	737.00	575.6	744.1	1,491.30	2,847.00	149,131.70
Transmission Link from local silver creek to Silver Creek Recharge	722.40	85	648.60	715.00	331.00	93.00	262.00	58.00	103.00	730.00	52,772.40
Transmission Link from local stevens creek to Stevens Creek Recharge	2,561.20	599.6	3,243.00	3,650.00	2,484.30	1,437.40	1,362.20	2,691.50	3,631.60	3,650.00	271,910.50
Transmission Link from local thompson creek to Thompson Creek Recharg	750.70	47	967.90	617.00	362.00	52.00	178.00	32.00	109.00	927.00	53,720.30
Transmission Link from local wildcat creek to Wildcat Creek Recharge	443.50	122.50	455.20	194.40	176.50	110.70	152.10	202.70	252.50	484.10	30,250.40
Sum	82,523.60	11,634.50	59,101.50	67,286.20	26,677.30	24,975.30	21,446.90	51,211.00	67,700.70	80,801.20	6,120,660.10
demand_reduction_fctr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.10	-0.19	0.00	

Initial Strategy 6 Implement

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Groundwater Storage (Acre-foot)	Groundwater	Groundwater	Groundwater S	Groundwater S	Groundwater S	Groundwater	Groundwate	Groundwater	Groundwater	Groundwater Storage (Acre-foot	
Coyote Subbasin	19795.5	12984.3	22619.5	21541.6	17433.4	18865.6	3657.5	0.0	1252.0	22115.3	
LlagasSubbasin	80063.0	116082.8	145264.5	141547.0	126332.7	120893.1	107833.4	108961.1	119936.3	143114.0	
North County Santa Clara Sbb	278073.4	222868.5	335838.9	297738.3	258004.9	203332.0	49906.3	1492.1	33352.0	328920.4	
Sum	377931.9	351935.5	503722.9	460826.9	401771.0	343090.7	161397.1	110453.2	154540.4	494149.7	
Reservoir Storage Volume (Acre-foot)	Reservoir Stor	Reservoir Stor	Reservoir Stora	Reservoir Stora	Reservoir Stora	Reservoir Stor	Reservoir St	Reservoir Stor	Reservoir Stor	Reservoir Storage Volume (Acre-	
Almaden Reservoir	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	351.0	
Anderson Reservoir	22000.0	60252.7	171300.0	134201.8	66521.4	22000.0	22000.0	22000.0	22000.0	156757.2	
Calero Reservoir	1000.0	693.5	5600.0	1000.0	932.6	1000.0	1000.0	993.9	2233.3	4457.5	
Chesbro Reservoir	500.0	500.0	4586.0	500.0	436.5	451.7	500.0	499.1	664.3	4586.0	
Coyote Reservoir	1000.0	1140.3	5200.0	5200.0	1032.4	1000.0	926.3	1000.0	1000.0	5200.0	
Guadalupe Reservoir	200.0	168.9	1188.0	200.0	200.0	200.0	200.0	200.0	200.0	1188.0	
Lexington Reservoir	1475.3	698.2	16000.0	5293.9	1558.3	624.0	239.4	1832.2	3998.7	9536.7	
Pacheco Reservoir	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	
Stevens Creek Reservoir	31.0	181.5	2368.0	583.6	31.0	31.0	31.0	31.0	1609.5	2368.0	
Uvas Reservoir	2703.9	2303.8	11141.2	975.0	500.0	500.0	500.0	997.9	4793.1	11423.0	
cvp caryover	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
cvp overflow not used	0.0	0.0	136542.1	136542.1	136542.1	136542.1	136542.1	136542.1	136542.1	136542.1	
semitropic reservoir	242493.3	0.0	58045.5	41205.5	3023.3	0.0	0.0	0.0	0.0	72407.4	
swp caryyover	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
swp overflow not used	0.0	0.0	46326.9	46326.9	46326.9	46326.9	46326.9	46326.9	46326.9	46326.9	
Sum	276603.5	71139.0	463497.7	377228.8	262304.4	213875.7	213465.7	215623.2	224567.9	456143.7	
Groundwater Natural Recharge (Acre-foot)	Groundwater	Groundwater	Groundwater N	Groundwater N	Groundwater N	Groundwater	Groundwate	Groundwater	Groundwater	Groundwater N	Groundwater Na
Coyote Subbasin	2535.0	1326.9	5335.0	1838.8	1544.9	1101.9	1457.8	2541.2	3273.6	2141.8	183393.1
LlagasSubbasin	24664.6	19659.9	33521.4	20971.2	20239.6	19330.3	21198.0	22272.2	21962.7	22365.9	1888278.1
North County Santa Clara Sbb	39177.8	26853.8	56312.9	30423.5	26962.8	27176.6	25998.0	24763.5	29247.2	34205.1	2881697.9
Sum	66377.4	47840.6	95169.3	53233.5	48747.3	47608.8	48653.8	49576.9	54483.5	58712.8	4953369.1
Transmission Link Flow (Acre-foot)	Transmission	Transmission	Transmission Li	Transmission Li	Transmission Li	Transmission	Transmissio	Transmission	Transmission	Transmission Li	Transmission Lin
Transmission Link from lake elsman to sjw west to SJ Water Company	12613.8	1362.0	14943.8	3997.9	3455.9	6503.9	3720.9	6431.9	3455.9	7405.9	815457.0
Transmission Link from stanford water to Stanford Moffett Field Ames	823.0	64.0	692.0	187.0	160.0	303.0	174.0	296.0	160.0	681.0	51733.2
Sum	13436.8	1426.0	15635.8	4184.9	3615.9	6806.9	3894.9	6727.9	3615.9	8086.9	867190.3
Transmission Link Flow (Acre-foot)	Transmission	Transmission	Transmission Li	Transmission Li	Transmission Li	Transmission	Transmissio	Transmission	Transmission	Transmission Li	Transmission Lin
Transmission Link from SCRWA to Morgan Hill to Morgan Hill Service Are	0.0	770.0	770.0	770.0	770.0	770.0	770.0	770.0	770.0	770.0	62369.1
Transmission Link from deliver recycled to gilroy to Gilroy Service Ar	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	131196.6
Transmission Link from hecker pass recycled to Gilroy Service Area	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from morgan hill recycled to Morgan Hill Service Are	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from recycle pa to palo alto to Palo Alto Service Ar	1055.8	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	69136.2
Transmission Link from recycle sv to sunnyvale to Sunnyvale Service Ar	1900.0	1900.0	1900.0	1900.0	1900.0	1900.0	1900.0	1900.0	1900.0	1900.0	155797.7
Transmission Link from recycled 1 to Llagas Ag	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	98400.0
Transmission Link from recycled SB to SJWC to SJ Water Company	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	3291.9	3041.7	246140.3
Transmission Link from recycled SB to santa clara to Santa Clara Servi	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	383760.0
Transmission Link from recycled pa to mountain view to Mountain View S	994.2	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	98961.3

	1922	**1977**	**1983**	**1987**	**1988**	**1989**	**1990**	**1991**	**1992**	**2002**	**Sum**
Transmission Link from recycled sb to milpitas to Milpitas Service Are	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	172692.0
Transmission Link from recycled sb to sj muni north to SJ Muni North	9500.4	9839.7	9839.7	9839.7	9839.7	9839.7	9839.7	9839.7	9304.8	9839.7	805981.2
Transmission Link from recycled sb to sjMuni edenvale to SJ Muni servi	4071.6	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	306387.9
Sum	30149.6	30919.5	30919.5	30919.5	30919.5	30919.5	30919.5	30919.5	30634.9	30919.5	2530822.4
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission Li	Transmission Li	Transmission Li	Transmission L	Transmission	Transmission L	Transmission L	Transmission Li	Transmission Lin
Transmission Link from hh to PHills to Purisma Hills Service Area	1828.0	1828.0	1828.0	1828.0	1828.0	1516.0	1516.0	1516.0	1516.0	1828.0	147200.7
Transmission Link from hh to Sunnyvale to Sunnyvale Service Area	13249.0	13249.0	13249.0	13249.0	13249.0	10988.0	10988.0	10988.0	10988.0	13249.0	1066882.9
Transmission Link from hh to milpitas service area to Milpitas Service	8451.0	8451.0	8451.0	8451.0	8451.0	7008.8	7008.8	7008.8	7008.8	8451.0	680521.4
Transmission Link from hh to moffett ames to Stanford Moffett Field Am	3395.0	3395.0	3395.0	3395.0	3395.0	2815.6	2815.6	2815.6	2815.6	3395.0	273384.2
Transmission Link from hh to mountain view to Mountain View Service Ar	14487.4	14407.8	14407.8	14407.8	14407.8	12120.0	12120.0	12058.1	9259.3	14407.8	1150577.1
Transmission Link from hh to palo alto to Palo Alto Service Area	14295.5	14397.2	14397.2	14397.2	14397.2	12121.7	12121.7	12078.3	9352.6	14397.2	1149747.4
Transmission Link from hh to santa clara to Santa Clara Service Area	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from hh to sj muni n to SJ Muni North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sum	55705.9	55728.0	55728.0	55728.0	55728.0	46570.3	46570.3	46464.9	40940.4	55728.0	4468313.6
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission Li	Transmission Li	Transmission Li	Transmission L	Transmission	Transmission L	Transmission L	Transmission Li	Transmission Lin
Transmission Link from local stevens creek flood release to Tributary	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from local uvas flood release to Tributary Inflow 5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from release from anderson to cvp pl to Anderson PL	420.5	62895.0	65195.0	25885.5	48072.0	7525.9	1420.0	5174.5	7451.7	24000.0	1859985.7
Transmission Link from release from calero to cvp pl to Calero PL rele	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from release from pacheco to Tributary Inflow 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sum	420.5	62895.0	65195.0	25885.5	48072.0	7525.9	1420.0	5174.5	7451.7	24000.0	1859985.7
Streamflow (below node or reach listed) (All Rivers) (Acre-foot)	Streamflow (b	Streamflow (b	Streamflow (be	Streamflow (be	Streamflow (be	Streamflow (b	Streamflow (	Streamflow (b	Streamflow (b	Streamflow (be	Streamflow (belo
SWP 1 Supply 0 \ Headflow	61999.1	10999.8	96998.6	29999.6	29999.6	56999.2	21999.7	27999.6	23999.6	63999.1	4939927.4
cvp 0 source supply 0 \ Headflow	121128.4	69175.9	152497.8	94555.5	64999.0	100323.6	64999.0	75023.6	81706.6	108114.6	8991576.1
Demand Site Inflows and Outflows (Demand Site: NC Coyote Pond Recharge	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from IPR Coyote	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Inflow from Lower Coyote Creek	10233.1	6918.9	10500.7	10950.0	9476.3	10579.0	3024.7	5107.8	5530.5	10950.0	846990.7
Inflow from cvp 3 santa clara conduit	390.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	390.4
Outflow to North County Santa Clara Sbb	-10623.5	-6918.9	-10500.7	-10950.0	-9476.3	-10579.0	-3024.7	-5107.8	-5530.5	-10950.0	-847381.1
Sum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Demand Site Inflows and Outflows (Demand Site: Ford Pond Recharge) (Acr	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from IPR Coyote	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Inflow from Lower Coyote Creek	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Outflow to North County Santa Clara Sbb	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Demand Site Inflows and Outflows (Demand Site: Los Gatos Ponds) (Acre-fo	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from IPR LG Ponds	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Inflow from Los Gatos Creek	4757.3	3742.3	0.0	9068.4	4971.1	4396.5	3253.2	5353.0	9582.4	11263.4	915597.9
Inflow from SWP 3 central pipeline	0.0	511.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4680.4	64372.9
Inflow from cvp 7 central pl	16843.6	5218.4	0.0	809.4	6927.9	1944.3	0.0	0.0	0.0	5936.6	252405.4

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Outflow to North County Santa Clara Sbb	-21600.9	-9472.4	0.0	-9877.8	-11899.0	-6340.8	-3253.2	-5353.0	-9582.4	-21880.5	-1232376.2
Sum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Demand Site Inflows and Outflows (Demand Site: Almaden and Guadalupe	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from Guadalupe Creek	6,371.30	385.6	0.00	2,978.10	1,644.20	3,113.80	2,701.40	5,176.90	6,079.70	6,259.10	390,511.70
Inflow from IPR Guadalupe	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inflow from SWP 4 almaden valley pipeline	126.80	0.00	0.00	674.70	0.00	0.00	0.00	0.00	0.00	392.20	8,999.60
Inflow from cvp 5 almaden valley pl	262.10	347.70	0.00	2,269.40	266.70	0.00	0.00	0.00	0.00	450.10	25,047.70
Outflow to North County Santa Clara Sbb	-6,760.20	-733.30	0.00	-5,922.10	-1,910.90	-3,113.80	-2,701.40	-5,176.90	-6,079.70	-7,101.40	-424,559.10
Sum	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demand Site Inflows and Outflows (Demand Site: Kooser) (Acre-foot)	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from IPR Guadalupe	0.00	0	0.00	0.00	0	0	0	0	0	0.00	0.00
Inflow from SWP 4 almaden valley pipeline	47.00	0	0.00	337.60	0	0	0	0	0	478.20	13,355.80
Inflow from cvp 5 almaden valley pl	245.8	81.5	0	745.9	233.9	0	0	0	103.8	487.00	39,100.40
Outflow to North County Santa Clara Sbb	-292.80	-81.5	0.00	-1,083.50	-233.9	0	0	0	-103.8	-965.20	-52,456.20
Sum	0.00	0	0.00	0.00	0	0	0	0	0	0.00	0.00
Demand Site Inflows and Outflows (Demand Site: Los Capitancillos Ponds) (	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from Guadalupe Creek	2,141.90	23	2,726.70	1,149.70	597.9	1,132.30	982.30	1,365.50	1,681.70	1,982.40	168,399.30
Inflow from IPR Guadalupe	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inflow from SWP 4 almaden valley pipeline	46.10	0	0.00	362.40	0	0.00	0	0.00	0.00	156.60	8,551.90
Inflow from cvp 5 almaden valley pl	95.30	135.9	0.00	979.00	97.00	0.00	0.00	0.00	0.00	246.30	18,805.50
Outflow to North County Santa Clara Sbb	-2,283.30	-158.9	-2,726.70	-2,491.10	-694.90	-1,132.30	-982.30	-1,365.50	-1,681.70	-2,385.30	-195,756.60
Sum	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demand Site Inflows and Outflows (Demand Site: Overfelt Ponds) (Acre-foo	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from IPR Penitencia	0	0	0.00	0	0	0	0	0	0	0	0.00
Inflow from Penitencia Creek	0	0	0.00	0.00	0	0	0	0	0	0	0.00
Inflow from SWP 2 SBA pipeline	450.7	442.8	1,460.00	1,460.00	1393.4	121.50	0	0	0	1,460.00	94,150.60
Outflow to North County Santa Clara Sbb	-450.7	-442.8	-1,460.00	-1,460.00	-1393.4	-121.50	0	0	0	-1,460.00	-94,150.60
Sum	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Penitencia Ponds) (Acre-f	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from IPR Penitencia	0	0	0.00	0	0	0	0	0	0	0	0.00
Inflow from Penitencia Creek	0	0	0.00	0.00	0.00	0	0	0	0	0	0.00
Inflow from SWP 2 SBA pipeline	766.20	752.8	2,482.00	2,482.00	2,368.70	206.60	0	0	0	2,482.00	160,056.10
Outflow to North County Santa Clara Sbb	-766.20	-752.8	-2,482.00	-2,482.00	-2,368.70	-206.60	0	0	0	-2,482.00	-160,056.10
Sum	0	0	0	0	0	0	0	0	0	0	0
Transmission Link Flow (Acre-foot)	Transmission I	Transmission I	Transmission Li	Transmission Li	Transmission Li	Transmission I	Transmission	Transmission I	Transmission I	Transmission Li	Transmission Lin
Transmission Link from Uvas release to Llagas recharge to Church Pond	0	520.3	294.4	6,017.50	2,834.80	2,189.10	1,834.80	3,865.30	3,492.20	3,518.80	209,236.10
Transmission Link from anderson release to butterfield to Butterfield	0.00	0	0.00	0.00	0	0	0	0.00	0.00	0.00	0.00
Transmission Link from anderson release to madronne to Madrone Ponds	7,888.80	1800.5	532.80	3,678.10	1,735.70	5843.7	0	1,000.00	1,000.00	3,162.50	228,387.40
Transmission Link from lex pl 1 to Rinconanda WTP	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 10 to NC IWRP recharge	0	0	0	0	0	0	0	0	0	0	0

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	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Transmission Link from lex pl 2 to San Tomas Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 3 to Wildcat Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 4 to Saratoga Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 5 to Rodeo Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 6 to Calabazas Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 7 to Regnart Creek Recharge	0	0	0	0	0	0	0	0	0	0	0.00
Transmission Link from lex pl 8 to Mcclellan Pond recharge	0	0	0.00	0	0	0	0	0	0	0	0.00
Transmission Link from lex pl 9 to Stevens Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local 2 coyote pond recharge to Coyote Pond Rec	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transmission Link from local 2 guad creek to Guadalupe creek	5,618.30	340	7,081.00	3,829.00	1,449.90	2,745.80	2,382.20	4,565.10	5,361.20	5,519.40	476,716.70
Transmission Link from local 2 lower coyote recharge to lower coyote r	1,460.00	1405.9	1,400.10	1,460.00	1,460.00	1460	1092	856	1,092.00	1,460.00	118,233.20
Transmission Link from local 2 overfelt to Overfelt Ponds	0	0	0.00	0	0	0	0	0	0	0	0.00
Transmission Link from local 2 pen ponds to Penitencia Ponds	0	0	0.00	0	0	0	0	0	0	0	0.00
Transmission Link from local 2 upper coyote to NC Upper Coyote Recharg	171.7	166.3	0	146.9	171.7	171.7	134.9	111.3	134.9	171.7	10,753.80
Transmission Link from local Chesbro release to recharge to Church Pon	0.00	148.10	6,235.40	1,282.50	383.00	243.30	744.80	2,266.20	3,807.80	3,781.20	339,790.60
Transmission Link from local Uvas release to recharge to Uvas Recharge	10,117.80	1,787.30	859.30	5,932.10	1,870.10	7,003.50	5,187.40	8,713.50	10,117.80	5,100.50	436,204.30
Transmission Link from local alamitos creek to Alamitos Creek recharge	1,106.50	101.70	2,078.80	887.20	447.00	849.20	736.8	1,042.90	1,405.70	1,305.10	131,276.70
Transmission Link from local anderson 2 coyote ponds to NC Coyote Pond	10,233.10	6,918.90	10,500.70	10,950.00	9,476.30	10579	3024.7	5,107.80	5,530.50	10,950.00	846,990.70
Transmission Link from local anderson release to main ave ponds to Mai	2,122.80	716.9	114.7	1,168.10	484.6	2471.6	0	500	500	1,021.20	65,736.50
Transmission Link from local anderson res to Church Pond and Llagas Re	0	0	0	0.00	0	0	0	0	0	0	0.00
Transmission Link from local anderson res to Lower Llagas Recharge	0.00	0	0.00	0	0	0	0	0	0.00	0.00	0.00
Transmission Link from local calabasas creek to Calabazas Creek Rechar	1,149.00	236	1,386.30	141	353	200	50	374.4	1,015.20	1,869.00	72,305.30
Transmission Link from local calero creek to Calero Creek recharge	724.00	43	875.10	493.40	186.8	353.80	307.00	588.30	689.00	711.30	61,234.80
Transmission Link from local guadalupe 1 to Los Capitancillos Ponds	2,141.90	23	2,726.70	1,149.70	597.9	1,132.30	982.30	1,365.50	1,681.70	1,982.40	168,399.30
Transmission Link from local guadaupe 2 to Almaden and Guadalupe Pond	6,371.30	385.6	0.00	2,978.10	1,644.20	3,113.80	2,701.40	5,176.90	6,079.70	6,259.10	390,511.70
Transmission Link from local lg creek diversion to Los Gatos Ck rechar	0.00	264.50	5,600.40	3,888.00	458.90	496.00	56.60	496.00	1,915.90	992.00	263,807.60
Transmission Link from local lg pond diversion to Los Gatos Ponds	4,757.30	3,742.30	0.00	9,068.40	4,971.10	4,396.50	3,253.20	5,353.00	9,582.40	11,263.40	915,597.90
Transmission Link from local lower Llagas recharge to Lower Llagas Rec	2,980.30	146.6	613.80	136.90	0	240.9	737.40	2,243.60	3,769.70	613.80	119,313.80
Transmission Link from local penitencia creek to Penitencia Creek Rech	1,335.80	164	0	427	334	484	227	410	747	1,198.00	57,156.40
Transmission Link from local regnart creek to Regnart Creek Recharge	276.7	14	349.5	15	20	4	1	73.3	189.4	451.7	16,979.20
Transmission Link from local release 2 ford ponds to Ford Pond Recharg	0.00	0.00	0.00	0.00	0.00	0	0	0.00	0.00	0.00	0.00
Transmission Link from local release 2 upper coyote to Coyote Upper Re	15,284.40	5,562.50	10,228.70	14,050.10	11,012.80	16996.3	0	7,813.10	7,309.00	14,105.50	1,124,393.50
Transmission Link from local rodeo creek to Rodeo Creek Recharge	67.6	2	126.00	2	3	0	0	16	50	178.7	5,041.90
Transmission Link from local ross creek recharge to Ross Creek Recharg	863.8	290	1,153.60	487	421	364	364	517	633	888	57,846.70
Transmission Link from local san tomoa creek to San Tomas Creek Rechar	691.4	188.5	777.4	299.1	271.5	170.3	233.9	311.8	388.5	771.9	48,760.20
Transmission Link from local saratoga div to NC IWRP recharge	0.00	267.8	2,365.50	468.20	245	519.00	405.4	524	1,050.20	2,004.90	104,542.90
Transmission Link from local saratogo creek to Saratoga Creek Recharge	2,683.40	380.2	3,146.30	664.80	348	737.00	575.6	744.1	1,491.30	2,847.00	150,881.40
Transmission Link from local silver creek to Silver Creek Recharge	722.40	85	700.00	715.00	331.00	93.00	262.00	58.00	103.00	730.00	53,035.60
Transmission Link from local stevens creek to Stevens Creek Recharge	2,561.20	599.6	3,500.20	3,650.00	2,484.30	1,437.40	1,362.20	2,691.50	3,631.60	3,650.00	273,226.60
Transmission Link from local thompson creek to Thompson Creek Recharg	750.7	47	1,045.10	617	362	52	178	32	109	927	54,102.50
Transmission Link from local wildcat creek to Wildcat Creek Recharge	443.50	122.50	505.30	194.40	176.50	110.70	152.10	202.70	252.50	484.10	30,498.80
Sum	82,523.60	26,469.60	64,197.00	74,796.50	44,534.10	64,458.10	26,986.50	57,019.30	73,130.40	87,918.10	6,830,962.20
demand_reduction_fctr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.13	-0.38	0.00	

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Groundwater Storage (Acre-foot)	Groundwater	Groundwater	Groundwater S	Groundwater S	Groundwater S	Groundwater	Groundwate	Groundwater	Groundwater	Groundwater Storage (Acre-foot	
Coyote Subbasin	19795.5	9446.4	24003.9	22906.2	10842.5	0.0	0.0	0.0	1182.2	22818.0	
LlagasSubbasin	80063.0	119014.4	146081.6	143418.7	127493.6	113921.6	100062.1	98418.3	103286.1	144463.5	
North County Santa Clara Sbb	278073.4	201231.5	342595.4	297886.5	226153.9	188434.7	82968.7	55901.8	63990.2	328906.6	
Sum	377931.9	329692.4	512681.0	464211.4	364490.0	302356.3	183030.9	154320.0	168458.5	496188.2	
Reservoir Storage Volume (Acre-foot)	Reservoir Stor	Reservoir Stor	Reservoir Stora	Reservoir Stora	Reservoir Stora	Reservoir Stor	Reservoir St	Reservoir Stor	Reservoir Stor	Reservoir Storage Volume (Acre	
Almaden Reservoir	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	351.0	
Anderson Reservoir	22000.0	22000.0	69864.0	33035.8	21939.3	21954.3	21550.4	22000.0	22000.0	52884.2	
Calero Reservoir	1000.0	697.0	5600.0	1000.0	932.6	1000.0	1000.0	993.9	2233.3	4457.5	
Chesbro Reservoir	500.0	500.0	4586.0	500.0	464.1	451.7	500.0	500.0	1293.4	4586.0	
Coyote Reservoir	1000.0	1000.0	5200.0	5200.0	997.2	993.7	910.4	1000.0	1000.0	5200.0	
Guadalupe Reservoir	200.0	168.9	1188.0	200.0	200.0	200.0	200.0	200.0	200.0	1188.0	
Lexington Reservoir	1475.3	868.4	16000.0	5476.2	1609.8	638.5	243.5	1833.5	3999.2	9578.9	
Pacheco Reservoir	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	
Stevens Creek Reservoir	31.0	181.5	2368.0	513.0	31.0	31.0	31.0	31.0	1459.0	2368.0	
Uvas Reservoir	2703.9	2824.1	5987.7	3905.1	1754.1	570.4	500.0	3963.6	6258.0	6258.0	
cvp caryover	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7438.5	
cvp overflow not used	0.0	30545.4	166008.5	166008.5	166008.5	166008.5	166008.5	166008.5	166008.5	184041.5	
semitropic reservoir	242493.3	160830.9	222774.1	216684.7	179521.2	150017.2	114281.6	76508.4	41168.2	125969.1	
swp caryyover	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5407.7	
swp overflow not used	0.0	299.6	46447.0	46447.0	46447.0	46447.0	46447.0	46447.0	46447.0	51539.6	
Sum	276603.5	225115.8	551223.2	484170.2	425104.8	393512.3	356872.4	324685.9	297266.5	466267.9	
Groundwater Natural Recharge (Acre-foot)	Groundwater	Groundwater	Groundwater N	Groundwater N	Groundwater N	Groundwater	Groundwate	Groundwater	Groundwater	Groundwater N	Groundwater Na
Coyote Subbasin	2535.0	1326.9	5335.0	1838.8	1544.9	1101.9	1457.8	2541.2	3273.6	2141.8	183393.1
LlagasSubbasin	24664.6	19659.9	33521.4	20971.2	20239.6	19330.3	21198.0	22272.2	21962.7	22365.9	1888278.1
North County Santa Clara Sbb	39177.8	26853.8	56312.9	30423.5	26962.8	27176.6	25998.0	24763.5	29247.2	34205.1	2881697.9
Sum	66377.4	47840.6	95169.3	53233.5	48747.3	47608.8	48653.8	49576.9	54483.5	58712.8	4953369.1
Transmission Link Flow (Acre-foot)	Transmission	Transmission	Transmission Li	Transmission Li	Transmission Li	Transmission	Transmissior	Transmission	Transmission	Transmission Li	Transmission Lin
Transmission Link from lake elsman to sjw west to SJ Water Company	12613.8	1362.0	14943.8	3997.9	3455.9	6503.9	3720.9	6431.9	3455.9	7405.9	815457.0
Transmission Link from stanford water to Stanford Moffett Field Ames	823.0	64.0	692.0	187.0	160.0	303.0	174.0	296.0	160.0	681.0	51733.2
Sum	13436.8	1426.0	15635.8	4184.9	3615.9	6806.9	3894.9	6727.9	3615.9	8086.9	867190.3
Transmission Link Flow (Acre-foot)	Transmission	Transmission	Transmission Li	Transmission Li	Transmission Li	Transmission	Transmissior	Transmission	Transmission	Transmission Li	Transmission Lin
Transmission Link from SCRWA to Morgan Hill to Morgan Hill Service Are	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from deliver recycled to gilroy to Gilroy Service Ar	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	131196.6
Transmission Link from hecker pass recycled to Gilroy Service Area	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from morgan hill recycled to Morgan Hill Service Are	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from recycle pa to palo alto to Palo Alto Service Ar	1055.8	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	69136.2
Transmission Link from recycle sv to sunnyvale to Sunnyvale Service Ar	1900.0	1900.0	1900.0	1900.0	1900.0	1900.0	1900.0	1900.0	1900.0	1900.0	155797.7
Transmission Link from recycled 1 to Llagas Ag	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	98400.0
Transmission Link from recycled SB to SJWC to SJ Water Company	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	243192.5
Transmission Link from recycled SB to santa clara to Santa Clara Servi	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	383760.0
Transmission Link from recycled pa to mountain view to Mountain View S	994.2	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	98961.3

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Transmission Link from recycled sb to milpitas to Milpitas Service Are	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	172692.0
Transmission Link from recycled sb to sj muni north to SJ Muni North	9500.4	9839.7	9839.7	9839.7	9839.7	9839.7	9839.7	9839.7	9839.7	9839.7	806516.1
Transmission Link from recycled sb to sjMuni edenvale to SJ Muni servi	4071.6	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	306387.9
Sum	30149.6	30149.6	30149.6	30149.6	30149.6	30149.6	30149.6	30149.6	30149.6	30149.6	2466040.3
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission Li	Transmission Li	Transmission Li	Transmission L	Transmission	Transmission L	Transmission L	Transmission Li	Transmission Lin
Transmission Link from hh to PHills to Purisma Hills Service Area	1828.0	1828.0	1828.0	1828.0	1828.0	1516.0	1516.0	1516.0	1516.0	1828.0	147200.7
Transmission Link from hh to Sunnyvale to Sunnyvale Service Area	13249.0	13249.0	13249.0	13249.0	13249.0	10988.0	10988.0	10988.0	10988.0	13249.0	1066882.9
Transmission Link from hh to milpitas service area to Milpitas Service	8451.0	8451.0	8451.0	8451.0	8451.0	7008.8	7008.8	7008.8	7008.8	8451.0	680521.4
Transmission Link from hh to moffett ames to Stanford Moffett Field Am	3395.0	3395.0	3395.0	3395.0	3395.0	2815.6	2815.6	2815.6	2815.6	3395.0	273384.2
Transmission Link from hh to mountain view to Mountain View Service Ar	14487.4	14407.8	14407.8	14407.8	14407.8	12120.0	12120.0	12058.1	11726.7	14407.8	1154150.0
Transmission Link from hh to palo alto to Palo Alto Service Area	14295.5	14397.2	14397.2	14397.2	14397.2	12121.7	12121.7	12078.3	11741.0	14397.2	1153286.1
Transmission Link from hh to santa clara to Santa Clara Service Area	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from hh to sj muni n to SJ Muni North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sum	55705.9	55728.0	55728.0	55728.0	55728.0	46570.3	46570.3	46464.9	45796.3	55728.0	4475425.3
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission Li	Transmission Li	Transmission Li	Transmission L	Transmission	Transmission L	Transmission L	Transmission Li	Transmission Lin
Transmission Link from local stevens creek flood release to Tributary	0.0	0.0	21869.3	0.0	0.0	0.0	0.0	0.0	642.9	2069.0	298316.8
Transmission Link from local uvas flood release to Tributary Inflow 5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from release from anderson to cvp pl to Anderson PL	420.5	6291.8	60680.2	6398.9	7876.4	344.8	442.7	4685.8	7025.2	971.2	665862.9
Transmission Link from release from calero to cvp pl to Calero PL rele	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from release from pacheco to Tributary Inflow 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sum	420.5	6291.8	82549.5	6398.9	7876.4	344.8	442.7	4685.8	7668.1	3040.2	964179.7
Streamflow (below node or reach listed) (All Rivers) (Acre-foot)	Streamflow (b	Streamflow (b	Streamflow (be	Streamflow (be	Streamflow (be	Streamflow (b	Streamflow (	Streamflow (b	Streamflow (b	Streamflow (be	Streamflow (belo
SWP 1 Supply 0 \ Headflow	61999.1	10999.8	96998.6	29999.6	29999.6	56999.2	21999.7	27999.6	23999.6	63999.1	4939927.4
cvp 0 source supply 0 \ Headflow	121128.4	69175.9	152497.8	94555.5	64999.0	100323.6	64999.0	75023.6	81706.6	108114.6	8991576.1
Demand Site Inflows and Outflows (Demand Site: NC Coyote Pond Recharge	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from IPR Coyote	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Inflow from Lower Coyote Creek	10233.1	1801.9	9613.5	10950.0	5260.7	303.6	782.0	4242.7	4467.4	10950.0	797138.9
Inflow from cvp 3 santa clara conduit	390.4	0.0	0.0	0.0	0.0	393.6	0.0	0.0	864.9	0.0	4174.2
Outflow to North County Santa Clara Sbb	-10623.5	-1801.9	-9613.5	-10950.0	-5260.7	-697.1	-782.0	-4242.7	-5332.3	-10950.0	-801313.1
Sum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Demand Site Inflows and Outflows (Demand Site: Ford Pond Recharge) (Acr	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from IPR Coyote	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Inflow from Lower Coyote Creek	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Outflow to North County Santa Clara Sbb	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Demand Site Inflows and Outflows (Demand Site: Los Gatos Ponds) (Acre-fo	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from IPR LG Ponds	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Inflow from Los Gatos Creek	4757.3	4069.9	0.0	9378.6	5083.6	4421.4	3262.3	5355.8	9583.0	11338.8	834248.3
Inflow from SWP 3 central pipeline	0.0	451.5	0.0	0.0	176.5	0.0	0.0	291.2	0.0	4657.1	44591.3
Inflow from cvp 7 central pl	16843.6	641.1	0.0	597.0	1728.8	7072.0	0.0	2173.2	1520.2	5913.7	241912.8

	1922	**1977**	**1983**	**1987**	**1988**	**1989**	**1990**	**1991**	**1992**	**2002**	**Sum**
Outflow to North County Santa Clara Sbb	-21600.9	-5162.5	0.0	-9975.6	-6988.9	-11493.4	-3262.3	-7820.2	-11103.2	-21909.6	-1120752.4
Sum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Demand Site Inflows and Outflows (Demand Site: Almaden and Guadalupe	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from Guadalupe Creek	6,371.30	385.6	0.00	3,290.50	1,644.20	3,113.80	2,701.40	5,176.90	6,079.70	6,259.10	355,704.10
Inflow from IPR Guadalupe	0.00	7,644.40	8,030.00	4,739.50	6,385.80	4,916.20	5,328.60	2,853.10	1,950.30	1,770.90	301,097.20
Inflow from SWP 4 almaden valley pipeline	126.80	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	126.80
Inflow from cvp 5 almaden valley pl	262.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	262.10
Outflow to North County Santa Clara Sbb	-6,760.20	-8,030.00	-8,030.00	-8,030.00	-8,030.00	-8,030.00	-8,030.00	-8,030.00	-8,030.00	-8,030.00	-657,190.20
Sum	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demand Site Inflows and Outflows (Demand Site: Kooser) (Acre-foot)	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from IPR Guadalupe	0.00	1,752.00	1,752.00	1,752.00	1,752.00	1,752.00	1,752.00	1,752.00	1,752.00	1,752.00	141,912.00
Inflow from SWP 4 almaden valley pipeline	47.00	0	0.00	0.00	0	0	0	0	0	0.00	47.00
Inflow from cvp 5 almaden valley pl	245.8	0	0	0	0	0	0	0	0	0.00	245.80
Outflow to North County Santa Clara Sbb	-292.80	-1,752.00	-1,752.00	-1,752.00	-1,752.00	-1,752.00	-1,752.00	-1,752.00	-1,752.00	-1,752.00	-142,204.80
Sum	0.00	0	0.00	0.00	0	0	0	0	0	0.00	0.00
Demand Site Inflows and Outflows (Demand Site: Los Capitancillos Ponds) (	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from Guadalupe Creek	2,141.90	23	2,490.20	1,184.80	597.9	1,132.30	982.30	1,365.50	1,681.70	1,982.40	170,408.40
Inflow from IPR Guadalupe	0.00	2,897.00	429.80	1,735.20	2,322.10	1,787.70	1,937.70	1,554.50	1,238.30	937.60	68,253.40
Inflow from SWP 4 almaden valley pipeline	46.10	0	0.00	0.00	0	0.00	0	0.00	0.00	0.00	46.10
Inflow from cvp 5 almaden valley pl	95.30	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	95.30
Outflow to North County Santa Clara Sbb	-2,283.30	-2,920.00	-2,920.00	-2,920.00	-2,920.00	-2,920.00	-2,920.00	-2,920.00	-2,920.00	-2,920.00	-238,803.30
Sum	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demand Site Inflows and Outflows (Demand Site: Overfelt Ponds) (Acre-foo	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from IPR Penitencia	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inflow from Penitencia Creek	0	0	0.00	0.00	0	0	0	0	0	0	0.00
Inflow from SWP 2 SBA pipeline	450.7	154.9	1,460.00	1,460.00	259.7	792.6	39.4	334.2	509	1,460.00	97,675.60
Outflow to North County Santa Clara Sbb	-450.7	-154.90	-1,460.00	-1,460.00	-259.70	-792.60	-39.40	-334.20	-509.00	-1,460.00	-97,675.60
Sum	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Penitencia Ponds) (Acre-f	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from IPR Penitencia	0	2,482.00	2,482.00	2,482.00	2,482.00	2,482.00	2,482.00	2,482.00	2,482.00	2,482.00	201,042.00
Inflow from Penitencia Creek	0	0	0.00	0.00	0.00	0	0	0	0	0	0.00
Inflow from SWP 2 SBA pipeline	766.20	0	0.00	0.00	0.00	0	0	0	0	0.00	766.20
Outflow to North County Santa Clara Sbb	-766.20	-2,482.00	-2,482.00	-2,482.00	-2,482.00	-2,482.00	-2,482.00	-2,482.00	-2,482.00	-2,482.00	-201,808.20
Sum	0	0	0	0	0	0	0	0	0	0	0
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission Li	Transmission Li	Transmission Li	Transmission L	Transmissio	Transmission L	Transmission L	Transmission Li	Transmission Lin
Transmission Link from Uvas release to Llagas recharge to Church Pond	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from anderson release to butterfield to Butterfield	0.00	196	331.30	1,052.90	667.00	0	0	1,089.10	905.90	331.30	68,318.80
Transmission Link from anderson release to madronne to Madrone Ponds	7,888.80	0	1,031.30	3,695.30	0.00	0	0	859.20	1,000.00	2,629.70	220,174.40
Transmission Link from lex pl 1 to Rinconanda WTP	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 10 to NC IWRP recharge	0	0	0	0	0	0	0	0	0	0	0

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Transmission Link from lex pl 2 to San Tomas Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 3 to Wildcat Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 4 to Saratoga Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 5 to Rodeo Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 6 to Calabazas Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 7 to Regnart Creek Recharge	0	0	328.5	0	0	0	0	0	88.3	49.3	10,594.40
Transmission Link from lex pl 8 to Mcclellan Pond recharge	0	0	1,418.80	0	0	0	0	0	483	148.8	46,826.20
Transmission Link from lex pl 9 to Stevens Creek Recharge	0	0	445.5	0	0	0	0	0	0	0	887.7
Transmission Link from local 2 coyote pond recharge to Coyote Pond Rec	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transmission Link from local 2 guad creek to Guadalupe creek	5,618.30	340	7,081.00	4,046.20	1,449.90	2,745.80	2,382.20	4,565.10	5,361.20	5,519.40	480,878.00
Transmission Link from local 2 lower coyote recharge to lower coyote r	1,460.00	468.2	1,281.80	1,460.00	1,092.00	429.5	574.7	856	1,092.00	1,460.00	115,095.90
Transmission Link from local 2 overfelt to Overfelt Ponds	0	0	0.00	0	0	0	0	0	0	0	0.00
Transmission Link from local 2 pen ponds to Penitencia Ponds	0	0	0.00	0	0	0	0	0	0	0	0.00
Transmission Link from local 2 upper coyote to NC Upper Coyote Recharg	171.7	50.4	0	148.1	134.9	45.9	64.3	111.3	134.9	171.7	9,501.10
Transmission Link from local Chesbro release to recharge to Church Pon	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transmission Link from local Uvas release to recharge to Uvas Recharge	10,117.80	1,626.40	1,663.20	5,959.80	5,932.10	10,117.80	7,008.00	8,713.50	10,117.80	4,241.20	473,088.30
Transmission Link from local alamitos creek to Alamitos Creek recharge	1,106.50	101.70	1,901.30	902.60	447.00	849.20	736.80	1,042.90	1,405.70	1,305.10	132,840.00
Transmission Link from local anderson 2 coyote ponds to NC Coyote Pond	10,233.10	1,801.90	9,613.50	10,950.00	5,260.70	303.6	782	4,242.70	4,467.40	10,950.00	797,138.90
Transmission Link from local anderson release to main ave ponds to Mai	2,122.80	0	222	825.70	0	0	0	377.9	436.6	566.10	54,395.80
Transmission Link from local anderson res to Church Pond and Llagas Re	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local anderson res to Lower Llagas Recharge	0.00	0	0.00	0	0	0	0	0	0.00	0.00	0.00
Transmission Link from local calabasas creek to Calabazas Creek Rechar	1,149.00	236	1,221.90	141	353	200	50	374.4	1,015.20	1,869.00	71,991.20
Transmission Link from local calero creek to Calero Creek recharge	724.00	43	801.10	521.40	186.8	353.80	307.00	588.30	689.00	711.30	61,591.50
Transmission Link from local guadalupe 1 to Los Capitancillos Ponds	2,141.90	23	2,490.20	1,184.80	597.9	1,132.30	982.30	1,365.50	1,681.70	1,982.40	170,408.40
Transmission Link from local guadaupe 2 to Almaden and Guadalupe Pond	6,371.30	385.6	0.00	3,290.50	1,644.20	3,113.80	2,701.40	5,176.90	6,079.70	6,259.10	355,704.10
Transmission Link from local lg creek diversion to Los Gatos Ck rechar	0.00	283.40	5,127.20	3,958.10	477.10	496.00	57.90	496.00	1,916.10	992.00	279,775.60
Transmission Link from local lg pond diversion to Los Gatos Ponds	4,757.30	4,069.90	0.00	9,378.60	5,083.60	4,421.40	3,262.30	5,355.80	9,583.00	11,338.80	834,248.30
Transmission Link from local lower Llagas recharge to Lower Llagas Rec	2,980.30	294.6	1,188.00	3,493.40	355.3	511.9	1,466.60	4,340.00	6,435.90	3,029.40	267,054.70
Transmission Link from local penitencia creek to Penitencia Creek Rech	1,335.80	164	0	437	334	484	227	410	747	1,198.00	53,428.40
Transmission Link from local regnart creek to Regnart Creek Recharge	276.7	14	305.4	15	20	4	1	73.3	189.4	451.7	16,916.50
Transmission Link from local release 2 ford ponds to Ford Pond Recharg	0.00	0.00	0.00	0.00	0.00	0	0	0.00	0.00	0.00	0.00
Transmission Link from local release 2 upper coyote to Coyote Upper Re	15,284.40	2,022.90	11,947.30	15,768.70	3,057.30	514.3	0	6,094.40	6,767.60	14,283.70	1,079,580.00
Transmission Link from local rodeo creek to Rodeo Creek Recharge	67.6	2	115.10	2	3	0	0	16	50	178.7	5,031.10
Transmission Link from local ross creek recharge to Ross Creek Recharg	863.8	290	1,020.40	487	421	364	364	517	633	888	57,599.40
Transmission Link from local san tomoa creek to San Tomas Creek Rechar	691.4	188.5	688.7	299.1	271.5	170.3	233.9	311.8	388.5	771.9	48,564.50
Transmission Link from local saratoga div to NC IWRP recharge	0.00	0	0.00	0.00	0	0.00	0	0	0.00	0.00	0.00
Transmission Link from local saratogo creek to Saratoga Creek Recharge	2,683.40	648	2,971.80	1,133.00	593	1,203.20	981	958.2	1,846.00	3,512.20	183,933.20
Transmission Link from local silver creek to Silver Creek Recharge	722.40	85	640.90	715.00	331.00	93.00	262.00	58.00	103.00	730.00	52,893.70
Transmission Link from local stevens creek to Stevens Creek Recharge	2,561.20	597.7	3,204.50	3,650.00	2,422.40	1,437.40	1,362.20	2,691.50	3,631.60	3,650.00	271,855.00
Transmission Link from local thompson creek to Thompson Creek Recharg	750.7	47	956.40	617	362	52	178	32	109	927	53,907.70
Transmission Link from local wildcat creek to Wildcat Creek Recharge	443.50	122.50	447.70	194.40	176.50	110.70	152.10	202.70	252.50	484.10	30,371.60
Sum	82,523.60	14,101.70	58,444.90	74,326.70	31,673.40	29,154.00	24,136.60	50,919.30	67,611.10	80,629.70	6,304,594.30
demand_reduction_fctr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.13	-0.19	0.00	

Initial Strategy 8 Community

	1922	**1977**	**1983**	**1987**	**1988**	**1989**	**1990**	**1991**	**1992**	**2002**	**Sum**
Groundwater Storage (Acre-foot)	Groundwater	Groundwater	Groundwater S	Groundwater S	Groundwater S	Groundwater	Groundwate	Groundwater	Groundwater	Groundwater Storage (Acre-foot	
Coyote Subbasin	19795.5	12984.3	22619.5	21541.6	17433.4	18865.6	3657.5	0.0	1252.0	22115.3	
LlagasSubbasin	80063.0	116082.8	145264.5	141547.0	126332.7	120893.1	107833.4	108961.1	119936.3	143114.0	
North County Santa Clara Sbb	278073.4	222868.5	335838.9	297738.3	258004.9	203332.0	49906.3	1492.1	33352.0	328920.4	
Sum	377931.9	351935.5	503722.9	460826.9	401771.0	343090.7	161397.1	110453.2	154540.4	494149.7	
Reservoir Storage Volume (Acre-foot)	Reservoir Stor	Reservoir Stor	Reservoir Stora	Reservoir Stora	Reservoir Stora	Reservoir Stor	Reservoir Sto	Reservoir Stor	Reservoir Stor	Reservoir Storage Volume (Acre-	
Almaden Reservoir	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	351.0	
Anderson Reservoir	22000.0	60252.7	171300.0	134201.8	66521.4	22000.0	22000.0	22000.0	22000.0	156757.2	
Calero Reservoir	1000.0	693.5	5600.0	1000.0	932.6	1000.0	1000.0	993.9	2233.3	4457.5	
Chesbro Reservoir	500.0	500.0	4586.0	500.0	436.5	451.7	500.0	499.1	664.3	4586.0	
Coyote Reservoir	1000.0	1140.3	5200.0	5200.0	1032.4	1000.0	926.3	1000.0	1000.0	5200.0	
Guadalupe Reservoir	200.0	168.9	1188.0	200.0	200.0	200.0	200.0	200.0	200.0	1188.0	
Lexington Reservoir	1475.3	698.2	16000.0	5293.9	1558.3	624.0	239.4	1832.2	3998.7	9536.7	
Pacheco Reservoir	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	
Stevens Creek Reservoir	31.0	181.5	2368.0	583.6	31.0	31.0	31.0	31.0	1609.5	2368.0	
Uvas Reservoir	2703.9	2303.8	11141.2	975.0	500.0	500.0	500.0	997.9	4793.1	11423.0	
cvp caryover	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
cvp overflow not used	0.0	0.0	136542.1	136542.1	136542.1	136542.1	136542.1	136542.1	136542.1	136542.1	
semitropic reservoir	242493.3	0.0	58045.5	41205.5	3023.3	0.0	0.0	0.0	0.0	72407.4	
swp caryyover	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
swp overflow not used	0.0	0.0	46326.9	46326.9	46326.9	46326.9	46326.9	46326.9	46326.9	46326.9	
Sum	276603.5	71139.0	463497.7	377228.8	262304.4	213875.7	213465.7	215623.2	224567.9	456143.7	
Groundwater Natural Recharge (Acre-foot)	Groundwater	Groundwater	Groundwater N	Groundwater N	Groundwater N	Groundwater	Groundwate	Groundwater	Groundwater	Groundwater N	Groundwater Na
Coyote Subbasin	2535.0	1326.9	5335.0	1838.8	1544.9	1101.9	1457.8	2541.2	3273.6	2141.8	183393.1
LlagasSubbasin	24664.6	19659.9	33521.4	20971.2	20239.6	19330.3	21198.0	22272.2	21962.7	22365.9	1888278.1
North County Santa Clara Sbb	39177.8	26853.8	56312.9	30423.5	26962.8	27176.6	25998.0	24763.5	29247.2	34205.1	2881697.9
Sum	66377.4	47840.6	95169.3	53233.5	48747.3	47608.8	48653.8	49576.9	54483.5	58712.8	4953369.1
Transmission Link Flow (Acre-foot)	Transmission	Transmission	Transmission Li	Transmission Li	Transmission Li	Transmission	Transmission	Transmission	Transmission	Transmission Li	Transmission Lin
Transmission Link from lake elsman to sjw west to SJ Water Company	12613.8	1362.0	14943.8	3997.9	3455.9	6503.9	3720.9	6431.9	3455.9	7405.9	815457.0
Transmission Link from stanford water to Stanford Moffett Field Ames	823.0	64.0	692.0	187.0	160.0	303.0	174.0	296.0	160.0	681.0	51733.2
Sum	13436.8	1426.0	15635.8	4184.9	3615.9	6806.9	3894.9	6727.9	3615.9	8086.9	867190.3
Transmission Link Flow (Acre-foot)	Transmission	Transmission	Transmission Li	Transmission Li	Transmission Li	Transmission	Transmission	Transmission	Transmission	Transmission Li	Transmission Lin
Transmission Link from SCRWA to Morgan Hill to Morgan Hill Service Are	0.0	770.0	770.0	770.0	770.0	770.0	770.0	770.0	770.0	770.0	62369.1
Transmission Link from deliver recycled to gilroy to Gilroy Service Ar	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	131196.6
Transmission Link from hecker pass recycled to Gilroy Service Area	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from morgan hill recycled to Morgan Hill Service Are	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from recycle pa to palo alto to Palo Alto Service Ar	1055.8	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	69136.2
Transmission Link from recycle sv to sunnyvale to Sunnyvale Service Ar	1900.0	1900.0	1900.0	1900.0	1900.0	1900.0	1900.0	1900.0	1900.0	1900.0	155797.7
Transmission Link from recycled 1 to Llagas Ag	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	98400.0
Transmission Link from recycled SB to SJWC to SJ Water Company	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	3291.9	3041.7	246140.3
Transmission Link from recycled SB to santa clara to Santa Clara Servi	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	383760.0
Transmission Link from recycled pa to mountain view to Mountain View S	994.2	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	98961.3

	1922	**1977**	**1983**	**1987**	**1988**	**1989**	**1990**	**1991**	**1992**	**2002**	**Sum**
Transmission Link from recycled sb to milpitas to Milpitas Service Are	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	172692.0
Transmission Link from recycled sb to sj muni north to SJ Muni North	9500.4	9839.7	9839.7	9839.7	9839.7	9839.7	9839.7	9839.7	9304.8	9839.7	805981.2
Transmission Link from recycled sb to sjMuni edenvale to SJ Muni servi	4071.6	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	306387.9
Sum	30149.6	30919.5	30919.5	30919.5	30919.5	30919.5	30919.5	30919.5	30634.9	30919.5	2530822.4
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission Li	Transmission Li	Transmission Li	Transmission L	Transmissior	Transmission L	Transmission L	Transmission Li	Transmission Lin
Transmission Link from hh to PHills to Purisma Hills Service Area	1828.0	1828.0	1828.0	1828.0	1828.0	1516.0	1516.0	1516.0	1516.0	1828.0	147200.7
Transmission Link from hh to Sunnyvale to Sunnyvale Service Area	13249.0	13249.0	13249.0	13249.0	13249.0	10988.0	10988.0	10988.0	10988.0	13249.0	1066882.9
Transmission Link from hh to milpitas service area to Milpitas Service	8451.0	8451.0	8451.0	8451.0	8451.0	7008.8	7008.8	7008.8	7008.8	8451.0	680521.4
Transmission Link from hh to moffett ames to Stanford Moffett Field Am	3395.0	3395.0	3395.0	3395.0	3395.0	2815.6	2815.6	2815.6	2815.6	3395.0	273384.2
Transmission Link from hh to mountain view to Mountain View Service Ar	14487.4	14407.8	14407.8	14407.8	14407.8	12120.0	12120.0	12058.1	9259.3	14407.8	1150577.1
Transmission Link from hh to palo alto to Palo Alto Service Area	14295.5	14397.2	14397.2	14397.2	14397.2	12121.7	12121.7	12078.3	9352.6	14397.2	1149747.4
Transmission Link from hh to santa clara to Santa Clara Service Area	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from hh to sj muni n to SJ Muni North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sum	55705.9	55728.0	55728.0	55728.0	55728.0	46570.3	46570.3	46464.9	40940.4	55728.0	4468313.6
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission Li	Transmission Li	Transmission Li	Transmission L	Transmissior	Transmission L	Transmission L	Transmission Li	Transmission Lin
Transmission Link from local stevens creek flood release to Tributary	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from local uvas flood release to Tributary Inflow 5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from release from anderson to cvp pl to Anderson PL	420.5	62895.0	65195.0	25885.5	48072.0	7525.9	1420.0	5174.5	7451.7	24000.0	1859985.7
Transmission Link from release from calero to cvp pl to Calero PL rele	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from release from pacheco to Tributary Inflow 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sum	420.5	62895.0	65195.0	25885.5	48072.0	7525.9	1420.0	5174.5	7451.7	24000.0	1859985.7
Streamflow (below node or reach listed) (All Rivers) (Acre-foot)	Streamflow (b	Streamflow (b	Streamflow (be	Streamflow (be	Streamflow (be	Streamflow (b	Streamflow (	Streamflow (b	Streamflow (b	Streamflow (be	Streamflow (belc
SWP 1 Supply 0 \ Headflow	61999.1	10999.8	96998.6	29999.6	29999.6	56999.2	21999.7	27999.6	23999.6	63999.1	4939927.4
cvp 0 source supply 0 \ Headflow	121128.4	69175.9	152497.8	94555.5	64999.0	100323.6	64999.0	75023.6	81706.6	108114.6	8991576.1
Demand Site Inflows and Outflows (Demand Site: NC Coyote Pond Recharge	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from IPR Coyote	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Inflow from Lower Coyote Creek	10233.1	6918.9	10500.7	10950.0	9476.3	10579.0	3024.7	5107.8	5530.5	10950.0	846990.7
Inflow from cvp 3 santa clara conduit	390.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	390.4
Outflow to North County Santa Clara Sbb	-10623.5	-6918.9	-10500.7	-10950.0	-9476.3	-10579.0	-3024.7	-5107.8	-5530.5	-10950.0	-847381.1
Sum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Demand Site Inflows and Outflows (Demand Site: Ford Pond Recharge) (Acr	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from IPR Coyote	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Inflow from Lower Coyote Creek	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Outflow to North County Santa Clara Sbb	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Demand Site Inflows and Outflows (Demand Site: Los Gatos Ponds) (Acre-fo	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from IPR LG Ponds	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Inflow from Los Gatos Creek	4757.3	3742.3	0.0	9068.4	4971.1	4396.5	3253.2	5353.0	9582.4	11263.4	915597.9
Inflow from SWP 3 central pipeline	0.0	511.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4680.4	64372.9
Inflow from cvp 7 central pl	16843.6	5218.4	0.0	809.4	6927.9	1944.3	0.0	0.0	0.0	5936.6	252405.4

Initial Strategy 8 Community

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Outflow to North County Santa Clara Sbb	-21600.9	-9472.4	0.0	-9877.8	-11899.0	-6340.8	-3253.2	-5353.0	-9582.4	-21880.5	-1232376.2
Sum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Demand Site Inflows and Outflows (Demand Site: Almaden and Guadalupe I	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from Guadalupe Creek	6,371.30	385.6	0.00	2,978.10	1,644.20	3,113.80	2,701.40	5,176.90	6,079.70	6,259.10	390,511.70
Inflow from IPR Guadalupe	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inflow from SWP 4 almaden valley pipeline	126.80	0.00	0.00	674.70	0.00	0.00	0.00	0.00	0.00	392.20	8,999.60
Inflow from cvp 5 almaden valley pl	262.10	347.70	0.00	2,269.40	266.70	0.00	0.00	0.00	0.00	450.10	25,047.70
Outflow to North County Santa Clara Sbb	-6,760.20	-733.30	0.00	-5,922.10	-1,910.90	-3,113.80	-2,701.40	-5,176.90	-6,079.70	-7,101.40	-424,559.10
Sum	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demand Site Inflows and Outflows (Demand Site: Kooser) (Acre-foot)	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from IPR Guadalupe	0.00	0	0.00	0.00	0	0	0	0	0	0.00	0.00
Inflow from SWP 4 almaden valley pipeline	47.00	0	0.00	337.60	0	0	0	0	0	478.20	13,355.80
Inflow from cvp 5 almaden valley pl	245.8	81.5	0	745.9	233.9	0	0	0	103.8	487.00	39,100.40
Outflow to North County Santa Clara Sbb	-292.80	-81.5	0.00	-1,083.50	-233.9	0	0	0	-103.8	-965.20	-52,456.20
Sum	0.00	0	0.00	0.00	0	0	0	0	0	0.00	0.00
Demand Site Inflows and Outflows (Demand Site: Los Capitancillos Ponds) (/	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from Guadalupe Creek	2,141.90	23	2,726.70	1,149.70	597.9	1,132.30	982.30	1,365.50	1,681.70	1,982.40	168,399.30
Inflow from IPR Guadalupe	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inflow from SWP 4 almaden valley pipeline	46.10	0	0.00	362.40	0	0.00	0	0.00	0.00	156.60	8,551.90
Inflow from cvp 5 almaden valley pl	95.30	135.9	0.00	979.00	97.00	0.00	0.00	0.00	0.00	246.30	18,805.50
Outflow to North County Santa Clara Sbb	-2,283.30	-158.9	-2,726.70	-2,491.10	-694.90	-1,132.30	-982.30	-1,365.50	-1,681.70	-2,385.30	-195,756.60
Sum	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demand Site Inflows and Outflows (Demand Site: Overfelt Ponds) (Acre-foo	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from IPR Penitencia	0	0	0.00	0	0	0	0	0	0	0	0.00
Inflow from Penitencia Creek	0	0	0.00	0.00	0	0	0	0	0	0	0.00
Inflow from SWP 2 SBA pipeline	450.7	442.8	1,460.00	1,460.00	1,393.40	121.50	0	0	0	1,460.00	94,150.60
Outflow to North County Santa Clara Sbb	-450.7	-442.8	-1,460.00	-1,460.00	-1,393.40	-121.50	0	0	0	-1,460.00	-94,150.60
Sum	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Penitencia Ponds) (Acre-fo	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from IPR Penitencia	0	0	0.00	0	0	0	0	0	0	0	0.00
Inflow from Penitencia Creek	0	0	0.00	0.00	0.00	0	0	0	0	0	0.00
Inflow from SWP 2 SBA pipeline	766.20	752.80	2,482.00	2,482.00	2,368.70	206.60	0	0	0	2,482.00	160,056.10
Outflow to North County Santa Clara Sbb	-766.20	-752.80	-2,482.00	-2,482.00	-2,368.70	-206.60	0	0	0	-2,482.00	-160,056.10
Sum	0	0	0	0	0	0	0	0	0	0	0
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission Li	Transmission Li	Transmission Li	Transmission L	Transmission	Transmission L	Transmission L	Transmission Li	Transmission Lin
Transmission Link from Uvas release to Llagas recharge to Church Pond	0	520.30	294.4	6,017.50	2,834.80	2,189.10	1,834.80	3,865.30	3,492.20	3,518.80	209,236.10
Transmission Link from anderson release to butterfield to Butterfield	0.00	0	0.00	0.00	0	0	0	0.00	0.00	0.00	0.00
Transmission Link from anderson release to madronne to Madrone Ponds	7,888.80	1,800.50	532.80	3,678.10	1,735.70	5,843.70	0	1,000.00	1,000.00	3,162.50	228,387.40
Transmission Link from lex pl 1 to Rinconanda WTP	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 10 to NC IWRP recharge	0	0	0	0	0	0	0	0	0	0	0

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Transmission Link from lex pl 2 to San Tomas Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 3 to Wildcat Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 4 to Saratoga Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 5 to Rodeo Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 6 to Calabazas Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 7 to Regnart Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 8 to Mcclellan Pond recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 9 to Stevens Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local 2 coyote pond recharge to Coyote Pond Rec	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transmission Link from local 2 guad creek to Guadalupe creek	5,618.30	340	7,081.00	3,829.00	1,449.90	2,745.80	2,382.20	4,565.10	5,361.20	5,519.40	476,716.70
Transmission Link from local 2 lower coyote recharge to lower coyote r	1,460.00	1,405.90	1,400.10	1,460.00	1,460.00	1,460.00	1092	856	1,092.00	1,460.00	118,233.20
Transmission Link from local 2 overfelt to Overfelt Ponds	0	0	0.00	0	0	0	0	0	0	0	0.00
Transmission Link from local 2 pen ponds to Penitencia Ponds	0	0	0.00	0	0	0	0	0	0	0	0.00
Transmission Link from local 2 upper coyote to NC Upper Coyote Recharg	171.7	166.3	0	146.9	171.7	171.7	134.9	111.3	134.9	171.7	10,753.80
Transmission Link from local Chesbro release to recharge to Church Pon	0.00	148.10	6,235.40	1,282.50	383.00	243.30	744.80	2,266.20	3,807.80	3,781.20	339,790.60
Transmission Link from local Uvas release to recharge to Uvas Recharge	10,117.80	1,787.30	859.30	5,932.10	1,870.10	7,003.50	5,187.40	8,713.50	10,117.80	5,100.50	436,204.30
Transmission Link from local alamitos creek to Alamitos Creek recharge	1,106.50	101.70	2,078.80	887.20	447.00	849.20	736.8	1,042.90	1,405.70	1,305.10	131,276.70
Transmission Link from local anderson 2 coyote ponds to NC Coyote Pond	10,233.10	6,918.90	10,500.70	10,950.00	9,476.30	10,579.00	3024.7	5,107.80	5,530.50	10,950.00	846,990.70
Transmission Link from local anderson release to main ave ponds to Mai	2,122.80	716.9	114.7	1,168.10	484.6	2,471.60	0	500	500	1,021.20	65,736.50
Transmission Link from local anderson res to Church Pond and Llagas Re	0	0.00	0	0	0.00	0.00	0	0	0	0	0.00
Transmission Link from local anderson res to Lower Llagas Recharge	0.00	0	0.00	0	0	0	0	0	0.00	0.00	0.00
Transmission Link from local calabasas creek to Calabazas Creek Rechar	1,149.00	236	1,386.30	141	353	200	50	374.4	1,015.20	1,869.00	72,305.30
Transmission Link from local calero creek to Calero Creek recharge	724.00	43	875.10	493.40	186.8	353.80	307.00	588.30	689.00	711.30	61,234.80
Transmission Link from local guadalupe 1 to Los Capitancillos Ponds	2,141.90	23	2,726.70	1,149.70	597.9	1,132.30	982.30	1,365.50	1,681.70	1,982.40	168,399.30
Transmission Link from local guadaupe 2 to Almaden and Guadalupe Pond	6,371.30	385.6	0.00	2,978.10	1,644.20	3,113.80	2,701.40	5,176.90	6,079.70	6,259.10	390,511.70
Transmission Link from local lg creek diversion to Los Gatos Ck rechar	0.00	264.50	5,600.40	3,888.00	458.90	496.00	56.60	496.00	1,915.90	992.00	263,807.60
Transmission Link from local lg pond diversion to Los Gatos Ponds	4,757.30	3,742.30	0.00	9,068.40	4,971.10	4,396.50	3,253.20	5,353.00	9,582.40	11,263.40	915,597.90
Transmission Link from local lower Llagas recharge to Lower Llagas Rec	2,980.30	146.6	613.80	136.90	0	240.9	737.40	2,243.60	3,769.70	613.80	119,313.80
Transmission Link from local penitencia creek to Penitencia Creek Rech	1,335.80	164	0	427	334	484	227	410	747	1,198.00	57,156.40
Transmission Link from local regnart creek to Regnart Creek Recharge	276.7	14	349.5	15	20	4	1	73.3	189.4	451.7	16,979.20
Transmission Link from local release 2 ford ponds to Ford Pond Recharg	0.00	0.00	0.00	0.00	0.00	0	0	0.00	0.00	0.00	0.00
Transmission Link from local release 2 upper coyote to Coyote Upper Re	15,284.40	5,562.50	10,228.70	14,050.10	11,012.80	16,996.30	0	7,813.10	7,309.00	14,105.50	1,124,393.50
Transmission Link from local rodeo creek to Rodeo Creek Recharge	67.6	2	126.00	2	3	0	0	16	50	178.7	5,041.90
Transmission Link from local ross creek recharge to Ross Creek Recharg	863.8	290	1,153.60	487	421	364	364	517	633	888	57,846.70
Transmission Link from local san tomoa creek to San Tomas Creek Rechar	691.4	188.5	777.4	299.1	271.5	170.3	233.9	311.8	388.5	771.9	48,760.20
Transmission Link from local saratoga div to NC IWRP recharge	0.00	267.8	2,365.50	468.20	245	519.00	405.4	524	1,050.20	2,004.90	104,542.90
Transmission Link from local saratogo creek to Saratoga Creek Recharge	2,683.40	380.2	3,146.30	664.80	348	737.00	575.6	744.1	1,491.30	2,847.00	150,881.40
Transmission Link from local silver creek to Silver Creek Recharge	722.40	85	700.00	715.00	331.00	93.00	262.00	58.00	103.00	730.00	53,035.60
Transmission Link from local stevens creek to Stevens Creek Recharge	2,561.20	599.6	3,500.20	3,650.00	2,484.30	1,437.40	1,362.20	2,691.50	3,631.60	3,650.00	273,226.60
Transmission Link from local thompson creek to Thompson Creek Recharg	750.7	47	1,045.10	617	362	52	178	32	109	927	54,102.50
Transmission Link from local wildcat creek to Wildcat Creek Recharge	443.50	122.50	505.30	194.40	176.50	110.70	152.10	202.70	252.50	484.10	30,498.80
Sum	82,523.60	26,469.60	64,197.00	74,796.50	44,534.10	64,458.10	26,986.50	57,019.30	73,130.40	87,918.10	6,830,962.20
demand_reduction_fctr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.13	-0.38	0.00	

Strategy A16

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Groundwater Storage (Acre-foot)	Groundwater	Groundwater	Groundwater S	Groundwater S	Groundwater S	Groundwater	Groundwate	Groundwater	Groundwater	Groundwater Storage (Acre-foot	
Coyote Subbasin	19795.5	13648.9	22409.0	22911.1	15452.9	4654.8	0.0	675.2	1182.2	22991.2	
LlagasSubbasin	80063.0	126533.4	145326.4	137051.9	126971.2	114245.5	100373.3	97851.8	101650.4	143393.7	
North County Santa Clara Sbb	278073.4	286141.3	332883.8	301344.6	275730.3	266758.7	194536.0	171140.9	167711.9	326821.7	
Sum	377931.9	426323.6	500619.2	461307.6	418154.5	385659.1	294909.3	269667.9	270544.4	493206.6	
Reservoir Storage Volume (Acre-foot)	Reservoir Stor	Reservoir Stor	Reservoir Stora	Reservoir Stora	Reservoir Stora	Reservoir Stor	Reservoir St	Reservoir Stor	Reservoir Stor	Reservoir Storage Volume (Acre-	
Almaden Reservoir	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	351.0	
Anderson Reservoir	22000.0	22000.0	69388.3	37583.3	21939.3	21954.3	21550.4	22000.0	22000.0	44186.4	
Calero Reservoir	1000.0	693.5	5600.0	1000.0	932.6	1000.0	1000.0	993.9	2233.3	4457.5	
Chesbro Reservoir	500.0	500.0	4586.0	500.0	443.7	451.7	500.0	500.0	1293.4	4586.0	
Coyote Reservoir	1000.0	1000.0	5200.0	5200.0	997.2	993.7	910.4	1000.0	1000.0	5200.0	
Guadalupe Reservoir	200.0	168.9	1188.0	200.0	200.0	200.0	200.0	200.0	200.0	1188.0	
Lexington Reservoir	1475.3	234.6	7449.9	1291.9	428.0	184.0	115.1	789.5	1504.7	5318.9	
Pacheco Reservoir	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	
Stevens Creek Reservoir	31.0	181.5	2368.0	583.6	31.0	31.0	31.0	31.0	1609.5	2368.0	
Uvas Reservoir	2703.9	2824.1	5987.7	1486.9	1104.1	557.6	500.0	3963.6	6258.0	6258.0	
cvp caryover	0.0	0.0	0.0	32606.0	0.0	0.0	0.0	0.0	0.0	41492.8	
cvp overflow not used	0.0	300698.9	534203.5	534203.5	534203.5	534203.5	534203.5	534203.5	534203.5	614586.3	
semitropic reservoir	242493.3	338790.7	350000.0	350000.0	336690.9	309338.0	273601.5	239282.1	210063.2	349604.9	
swp caryyover	0.0	0.0	0.0	17473.5	0.0	0.0	0.0	0.0	0.0	27661.8	
swp overflow not used	0.0	134206.4	291467.9	291467.9	291467.9	291467.9	291467.9	291467.9	291467.9	296826.9	
Sum	276603.5	806498.6	1282639.3	1278796.5	1193638.4	1165581.7	1129279.9	1099631.5	1077033.5	1409086.6	
Groundwater Natural Recharge (Acre-foot)	Groundwater	Groundwater	Groundwater N	Groundwater N	Groundwater N	Groundwater	Groundwate	Groundwater	Groundwater	Groundwater N	Groundwater Na
Coyote Subbasin	2535.0	1326.9	5335.0	1838.8	1544.9	1101.9	1457.8	2541.2	3273.6	2141.8	183393.1
LlagasSubbasin	24664.6	19659.9	33521.4	20971.2	20239.6	19330.3	21198.0	22272.2	21962.7	22365.9	1888278.1
North County Santa Clara Sbb	39177.8	26853.8	56312.9	30423.5	26962.8	27176.6	25998.0	24763.5	29247.2	34205.1	2881697.9
Sum	66377.4	47840.6	95169.3	53233.5	48747.3	47608.8	48653.8	49576.9	54483.5	58712.8	4953369.1
Transmission Link Flow (Acre-foot)	Transmission	Transmission	Transmission Li	Transmission Li	Transmission Li	Transmission	Transmissio	Transmission	Transmission	Transmission Li	Transmission Lin
Transmission Link from lake elsman to sjw west to SJ Water Company	12613.8	1362.0	14943.8	3997.9	3455.9	6503.9	3720.9	6431.9	3455.9	7405.9	815457.0
Transmission Link from stanford water to Stanford Moffett Field Ames	823.0	64.0	692.0	187.0	160.0	303.0	174.0	296.0	160.0	681.0	51733.2
Sum	13436.8	1426.0	15635.8	4184.9	3615.9	6806.9	3894.9	6727.9	3615.9	8086.9	867190.3
Transmission Link Flow (Acre-foot)	Transmission	Transmission	Transmission Li	Transmission Li	Transmission Li	Transmission	Transmissio	Transmission	Transmission	Transmission Li	Transmission Lin
Transmission Link from SCRWA to Morgan Hill to Morgan Hill Service Are	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from deliver recycled to gilroy to Gilroy Service Ar	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	131196.6
Transmission Link from hecker pass recycled to Gilroy Service Area	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from morgan hill recycled to Morgan Hill Service Are	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from recycle pa to palo alto to Palo Alto Service Ar	1055.8	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	69136.2
Transmission Link from recycle sv to sunnyvale to Sunnyvale Service Ar	1900.0	2400.0	2400.0	2400.0	2400.0	2400.0	2400.0	2400.0	2400.0	2400.0	196297.1
Transmission Link from recycled 1 to Llagas Ag	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	98400.0
Transmission Link from recycled SB to SJWC to SJ Water Company	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	249415.8
Transmission Link from recycled SB to santa clara to Santa Clara Servi	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	383760.0
Transmission Link from recycled pa to mountain view to Mountain View S	994.2	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	98961.3

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Transmission Link from recycled sb to milpitas to Milpitas Service Are	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	172692.0
Transmission Link from recycled sb to sj muni north to SJ Muni North	9500.4	9839.7	9839.7	9839.7	9839.7	9839.7	9839.7	9839.7	9839.7	9839.7	806516.1
Transmission Link from recycled sb to sjMuni edenvale to SJ Muni servi	4071.6	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	306387.9
Sum	30149.6	30649.5	30649.5	30649.5	30649.5	30649.5	30649.5	30649.5	30649.5	30649.5	2512763.1
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission Li	Transmission Li	Transmission Li	Transmission L	Transmission	Transmission L	Transmission L	Transmission Li	Transmission Lin
Transmission Link from hh to PHills to Purisma Hills Service Area	1828.0	1828.0	1828.0	1828.0	1828.0	1516.0	1516.0	1516.0	1516.0	1828.0	147200.7
Transmission Link from hh to Sunnyvale to Sunnyvale Service Area	13249.0	13249.0	13249.0	13249.0	13249.0	10988.0	10988.0	10988.0	10988.0	13249.0	1066882.9
Transmission Link from hh to milpitas service area to Milpitas Service	8451.0	8451.0	8451.0	8451.0	8451.0	7008.8	7008.8	7008.8	7008.8	8451.0	680521.4
Transmission Link from hh to moffett ames to Stanford Moffett Field Am	3395.0	3395.0	3395.0	3395.0	3395.0	2815.6	2815.6	2815.6	2815.6	3395.0	273384.2
Transmission Link from hh to mountain view to Mountain View Service Ar	14487.4	14167.1	14167.1	14167.1	14167.1	12120.0	12120.0	12116.7	12075.7	14167.1	1143597.0
Transmission Link from hh to palo alto to Palo Alto Service Area	14295.5	14397.2	14397.2	14397.2	14397.2	12121.7	12121.7	12121.7	12121.7	14397.2	1160281.0
Transmission Link from hh to santa clara to Santa Clara Service Area	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from hh to sj muni n to SJ Muni North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sum	55705.9	55487.3	55487.3	55487.3	55487.3	46570.3	46570.3	46567.0	46526.0	55487.3	4471867.1
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission Li	Transmission Li	Transmission Li	Transmission L	Transmission	Transmission L	Transmission L	Transmission Li	Transmission Lin
Transmission Link from local stevens creek flood release to Tributary	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from local uvas flood release to Tributary Inflow 5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from release from anderson to cvp pl to Anderson PL	420.5	6736.0	60592.6	7299.2	7222.0	970.6	442.7	5584.8	7016.4	6096.3	934668.6
Transmission Link from release from calero to cvp pl to Calero PL rele	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from release from pacheco to Tributary Inflow 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sum	420.5	6736.0	60592.6	7299.2	7222.0	970.6	442.7	5584.8	7016.4	6096.3	934668.6
Streamflow (below node or reach listed) (All Rivers) (Acre-foot)	Streamflow (b	Streamflow (b	Streamflow (be	Streamflow (be	Streamflow (be	Streamflow (b	Streamflow (	Streamflow (b	Streamflow (b	Streamflow (be	Streamflow (bel
SWP 1 Supply 0 \ Headflow	61999.1	10999.8	96998.6	29999.6	29999.6	56999.2	21999.7	27999.6	23999.6	63999.1	4939927.4
cvp 0 source supply 0 \ Headflow	121128.4	69175.9	142497.9	94555.5	64999.0	100323.6	64999.0	75023.6	81706.6	108114.6	8761579.4
Demand Site Inflows and Outflows (Demand Site: NC Coyote Pond Recharge	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from IPR Coyote	0.0	3999.9	3999.9	3999.9	3999.9	3999.9	3999.9	3999.9	3999.9	3999.9	323995.2
Inflow from Lower Coyote Creek	10233.1	607.3	1475.1	1475.1	988.7	153.4	483.7	758.1	940.3	1475.1	124410.4
Inflow from cvp 3 santa clara conduit	390.4	371.8	0.0	0.0	0.0	214.2	0.0	0.0	60.1	0.0	1222.4
Outflow to North County Santa Clara Sbb	-10623.5	-4979.0	-5475.0	-5475.0	-4988.6	-4367.6	-4483.7	-4758.0	-5000.4	-5475.0	-449628.0
Sum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Demand Site Inflows and Outflows (Demand Site: Ford Pond Recharge) (Acr	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from IPR Coyote	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Inflow from Lower Coyote Creek	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Outflow to North County Santa Clara Sbb	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Demand Site Inflows and Outflows (Demand Site: Los Gatos Ponds) (Acre-fo	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from IPR LG Ponds	0.0	19999.7	0.0	16657.3	19999.7	19999.7	19999.7	19999.7	19999.7	19999.7	1194283.8
Inflow from Los Gatos Creek	4757.3	0.0	0.0	280.2	0.0	0.0	0.0	322.6	291.4	322.6	29905.1
Inflow from SWP 3 central pipeline	0.0	0.0	0.0	0.0	0.0	0.0	313.6	0.0	0.0	0.0	406.5
Inflow from cvp 7 central pl	16843.6	3798.3	0.0	2883.3	3798.3	3798.3	1257.7	3475.7	3506.9	3475.7	215068.1

	1922	**1977**	**1983**	**1987**	**1988**	**1989**	**1990**	**1991**	**1992**	**2002**	**Sum**
Outflow to North County Santa Clara Sbb	-21600.9	-23798.0	0.0	-19820.8	-23798.0	-23798.0	-21571.1	-23798.0	-23798.0	-23798.0	-1439663.5
Sum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Demand Site Inflows and Outflows (Demand Site: Almaden and Guadalupe	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from Guadalupe Creek	6,371.30	385.6	0.00	2,721.50	1,644.20	3,113.80	2,701.40	5,176.90	6,079.70	6,259.10	369,952.10
Inflow from IPR Guadalupe	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inflow from SWP 4 almaden valley pipeline	126.80	1,327.30	0.00	985.20	850.90	0.00	0.00	0.00	0.00	667.30	21,843.00
Inflow from cvp 5 almaden valley pl	262.10	5,135.60	0.00	2,167.10	3,433.50	2,323.00	0.00	0.00	0.00	680.40	54,209.80
Outflow to North County Santa Clara Sbb	-6,760.20	-6,848.50	0.00	-5,873.70	-5,928.60	-5,436.80	-2,701.40	-5,176.90	-6,079.70	-7,606.90	-446,004.90
Sum	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demand Site Inflows and Outflows (Demand Site: Kooser) (Acre-foot)	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from IPR Guadalupe	0.00	0	0.00	0.00	0	0	0	0	0	0.00	0.00
Inflow from SWP 4 almaden valley pipeline	47.00	289.6	0.00	388.80	241.6	0	0	0	0	584.00	22,297.20
Inflow from cvp 5 almaden valley pl	245.8	1,172.80	0	681.6	827.2	851.6	0	292.8	576	584.00	47,462.10
Outflow to North County Santa Clara Sbb	-292.80	-1,462.40	0.00	-1,070.40	-1,068.80	-851.6	0	-292.8	-576	-1,168.00	-69,759.40
Sum	0.00	0	0.00	0.00	0	0	0	0	0	0.00	0.00
Demand Site Inflows and Outflows (Demand Site: Los Capitancillos Ponds) (	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from Guadalupe Creek	2,141.90	23	2,764.40	1,149.70	597.9	1,132.30	982.30	1,365.50	1,681.70	1,982.40	168,531.20
Inflow from IPR Guadalupe	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inflow from SWP 4 almaden valley pipeline	46.10	482.7	0.00	445.10	309.4	0.00	0	0.00	0.00	339.30	16,215.50
Inflow from cvp 5 almaden valley pl	95.30	1,931.70	0.00	870.70	1,248.50	844.70	0.00	0.00	0.00	408.00	31,785.00
Outflow to North County Santa Clara Sbb	-2,283.30	-2,437.30	-2,764.40	-2,465.50	-2,155.80	-1,977.00	-982.30	-1,365.50	-1,681.70	-2,729.60	-216,531.60
Sum	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demand Site Inflows and Outflows (Demand Site: Overfelt Ponds) (Acre-foo	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from IPR Penitencia	0	0	0.00	0	0	0	0	0	0	0	0.00
Inflow from Penitencia Creek	0	0	0.00	0.00	0	0	0	0	0	0	0.00
Inflow from SWP 2 SBA pipeline	450.7	1,457.70	1,460.00	1,460.00	1,304.90	1,373.00	143.2	833.1	1,232.30	1,460.00	113,138.30
Outflow to North County Santa Clara Sbb	-450.7	-1,457.70	-1,460.00	-1,460.00	-1,304.90	-1,373.00	-143.2	-833.1	-1,232.30	-1,460.00	-113,138.30
Sum	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Penitencia Ponds) (Acre-f	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from IPR Penitencia	0	2,482.00	2,482.00	2,482.00	2,482.00	2,482.00	2,482.00	2,482.00	2,482.00	2,482.00	201,042.00
Inflow from Penitencia Creek	0	0	0.00	0.00	0.00	0	0	0	0	0	0.00
Inflow from SWP 2 SBA pipeline	766.20	0	0.00	0.00	0.00	0	0	0	0	0.00	766.20
Outflow to North County Santa Clara Sbb	-766.20	-2,482.00	-2,482.00	-2,482.00	-2,482.00	-2,482.00	-2,482.00	-2,482.00	-2,482.00	-2,482.00	-201,808.20
Sum	0	0	0	0	0	0	0	0	0	0	0
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission Li	Transmission Li	Transmission Li	Transmission L	Transmission	Transmission L	Transmission L	Transmission Li	Transmission Lin
Transmission Link from Uvas release to Llagas recharge to Church Pond	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from anderson release to butterfield to Butterfield	0.00	0	0.00	0.00	0	0	0	0.00	0.00	0.00	0.00
Transmission Link from anderson release to madronne to Madrone Ponds	7,888.80	1,495.40	1,677.50	3,368.70	1,920.40	0	0	1,677.50	1,897.50	3,368.80	218,482.60
Transmission Link from lex pl 1 to Rinconanda WTP	0	2,936.70	43,586.50	10,995.60	2,864.00	4,251.10	2,994.10	5,890.50	12,252.90	11,164.80	1,453,321.50
Transmission Link from lex pl 10 to NC IWRP recharge	0	0	136.4	0	0	0	0	0	0	249.3	6,842.10

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	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Transmission Link from lex pl 2 to San Tomas Creek Recharge	0	0	30.8	0	0	0	0	0	0	54.2	1,272.40
Transmission Link from lex pl 3 to Wildcat Creek Recharge	0	0	20	0	0	0	0	0	0	35.2	904
Transmission Link from lex pl 4 to Saratoga Creek Recharge	0	0	339.5	0	0	0	0	0	0	353.9	10,280.10
Transmission Link from lex pl 5 to Rodeo Creek Recharge	0	0	459.9	0	0	0	0	68.9	47.7	80.9	11,338.10
Transmission Link from lex pl 6 to Calabazas Creek Recharge	0	0	422.8	0	0	0	0	0	0	106.4	9,255.60
Transmission Link from lex pl 7 to Regnart Creek Recharge	0	0	156.2	0	0	0	0	0	0	49.3	3,778.60
Transmission Link from lex pl 8 to Mcclellan Pond recharge	0	0	1,017.60	0	0	0	0	148.8	134.4	148.8	26,280.20
Transmission Link from lex pl 9 to Stevens Creek Recharge	0	0	102.7	0	0	0	0	0	0	0	397.4
Transmission Link from local 2 coyote pond recharge to Coyote Pond Rec	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transmission Link from local 2 guad creek to Guadalupe creek	5,618.30	340	7,081.00	3,583.20	1,449.90	2,745.80	2,382.20	4,565.10	5,361.20	5,519.40	476,496.10
Transmission Link from local 2 lower coyote recharge to lower coyote r	1,460.00	746.3	1,418.90	1,460.00	1,092.00	429.5	574.7	856	1,092.00	1,460.00	115,591.60
Transmission Link from local 2 overfelt to Overfelt Ponds	0	0	0.00	0	0	0	0	0	0	0	0.00
Transmission Link from local 2 pen ponds to Penitencia Ponds	0	0	0.00	0	0	0	0	0	0	0	0.00
Transmission Link from local 2 upper coyote to NC Upper Coyote Recharg	171.7	86.5	0	144.3	134.9	45.9	64.3	111.3	134.9	171.7	9,996.30
Transmission Link from local Chesbro release to recharge to Church Pon	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transmission Link from local Uvas release to recharge to Uvas Recharge	10,117.80	1,787.30	3,381.80	6,791.40	4,724.80	9,556.80	6,995.30	8,713.50	10,117.80	6,791.40	571,300.50
Transmission Link from local alamitos creek to Alamitos Creek recharge	1,106.50	101.70	2,107.00	887.20	447.00	849.20	736.8	1,042.90	1,405.70	1,305.10	131,197.70
Transmission Link from local anderson 2 coyote ponds to NC Coyote Pond	10,233.10	607.30	1,475.10	1,475.10	988.70	153.4	483.7	758.10	940.30	1,475.10	124,410.40
Transmission Link from local anderson release to main ave ponds to Mai	2,122.80	402.4	451.4	906.50	516.8	0	0	451.4	451.4	906.50	57,984.20
Transmission Link from local anderson res to Church Pond and Llagas Re	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local anderson res to Lower Llagas Recharge	0.00	0	0.00	0	0	0	0	0	0.00	0.00	0.00
Transmission Link from local calabasas creek to Calabazas Creek Rechar	1,149.00	236	1,426.00	141	353	200	50	374.4	1,015.20	1,869.00	72,252.80
Transmission Link from local calero creek to Calero Creek recharge	724.00	43	886.80	461.80	186.8	353.80	307.00	588.30	689.00	711.30	61,147.40
Transmission Link from local guadalupe 1 to Los Capitancillos Ponds	2,141.90	23	2,764.40	1,149.70	597.9	1,132.30	982.30	1,365.50	1,681.70	1,982.40	168,531.20
Transmission Link from local guadaupe 2 to Almaden and Guadalupe Pond	6,371.30	385.6	0.00	2,721.50	1,644.20	3,113.80	2,701.40	5,176.90	6,079.70	6,259.10	369,952.10
Transmission Link from local lg creek diversion to Los Gatos Ck rechar	0.00	0.00	3,227.60	0.00	0.00	0.00	0.00	496.00	448.00	496.00	86,964.80
Transmission Link from local lg pond diversion to Los Gatos Ponds	4,757.30	0.00	0.00	280.20	0.00	0.00	0.00	322.60	291.40	322.60	29,905.10
Transmission Link from local lower Llagas recharge to Lower Llagas Rec	2,980.30	294.6	2,415.60	2,473.20	375.7	491.5	1,466.60	4,340.00	6,435.90	4,023.90	319,006.00
Transmission Link from local penitencia creek to Penitencia Creek Rech	1,335.80	164	0	532	334	484	227	410	747	1,198.00	52,316.90
Transmission Link from local regnart creek to Regnart Creek Recharge	276.7	14	359.4	15	20	4	1	73.3	189.4	451.7	16,966.10
Transmission Link from local release 2 ford ponds to Ford Pond Recharg	0.00	0.00	0.00	0.00	0.00	0	0	0.00	0.00	0.00	0.00
Transmission Link from local release 2 upper coyote to Coyote Upper Re	15,284.40	2,456.20	10,228.70	15,768.70	7,555.70	38.6	0	7,697.90	8,688.80	14,283.70	1,105,891.00
Transmission Link from local rodeo creek to Rodeo Creek Recharge	67.6	2	126.00	2	3	0	0	16	50	178.7	5,041.90
Transmission Link from local ross creek recharge to Ross Creek Recharg	863.8	290	1,185.80	487	421	364	364	517	633	888	57,763.00
Transmission Link from local san tomoa creek to San Tomas Creek Rechar	691.4	188.5	791.5	299.1	271.5	170.3	233.9	311.8	388.5	771.9	48,694.40
Transmission Link from local saratoga div to NC IWRP recharge	0.00	267.8	2,365.50	468.20	245	519.00	405.4	524	1,050.20	2,004.90	104,584.70
Transmission Link from local saratogo creek to Saratoga Creek Recharge	2,683.40	380.2	3,213.10	664.80	348	737.00	575.6	744.1	1,491.30	2,847.00	150,629.30
Transmission Link from local silver creek to Silver Creek Recharge	722.40	85	709.50	715.00	331.00	93.00	262.00	58.00	103.00	730.00	52,991.80
Transmission Link from local stevens creek to Stevens Creek Recharge	2,561.20	599.6	3,547.30	3,650.00	2,484.30	1,437.40	1,362.20	2,691.50	3,631.60	3,650.00	273,007.30
Transmission Link from local thompson creek to Thompson Creek Recharg	750.7	47	1,059.20	617	362	52	178	32	109	927	54,036.70
Transmission Link from local wildcat creek to Wildcat Creek Recharge	443.50	122.50	514.50	194.40	176.50	110.70	152.10	202.70	252.50	484.10	30,456.00
Sum	82,523.60	14,102.50	98,685.90	60,252.50	29,848.20	27,333.30	23,499.40	50,225.90	67,811.10	77,320.00	6,289,267.90
demand_reduction_fctr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.05	-0.07	0.00	

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	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Groundwater Storage (Acre-foot)	Groundwater	Groundwater	Groundwater S	Groundwater S	Groundwater S	Groundwater	Groundwate	Groundwater	Groundwater	Groundwater Storage (Acre-foot	
Coyote Subbasin	19795.5	22854.3	22510.4	23012.5	22175.2	22379.9	21574.2	21563.8	22793.3	23646.5	
LlagasSubbasin	80063.0	124680.5	143479.5	138084.2	131484.0	132984.0	131727.7	131113.6	135529.9	143540.2	
North County Santa Clara Sbb	278073.4	278105.7	330480.8	298571.4	278490.5	272679.0	242374.3	211482.7	184665.5	316977.3	
Sum	377931.9	425640.5	496470.7	459668.2	432149.7	428042.9	395676.2	364160.1	342988.7	484163.9	
Reservoir Storage Volume (Acre-foot)	Reservoir Stor	Reservoir Stor	Reservoir Stora	Reservoir Stora	Reservoir Stora	Reservoir Stor	Reservoir St	Reservoir Stor	Reservoir Stor	Reservoir Storage Volume (Acre-	
Almaden Reservoir	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	351.0	
Anderson Reservoir	22000.0	135324.0	171300.0	169520.1	128974.8	88919.5	24873.4	22000.0	22000.0	171300.0	
Calero Reservoir	1000.0	689.8	5600.0	1000.0	932.6	1000.0	1000.0	993.9	2233.3	4457.5	
Chesbro Reservoir	500.0	500.0	4586.0	500.0	443.7	451.7	500.0	500.0	1547.0	4586.0	
Coyote Reservoir	1000.0	4582.6	5200.0	5200.0	1032.4	3571.1	1014.4	1000.0	1000.0	5200.0	
Guadalupe Reservoir	200.0	168.9	1188.0	200.0	200.0	200.0	200.0	200.0	200.0	1188.0	
Lexington Reservoir	1475.3	253.0	7598.7	1291.9	428.0	184.0	115.1	789.5	1523.9	5853.8	
Pacheco Reservoir	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	
Stevens Creek Reservoir	31.0	181.5	2368.0	513.0	31.0	31.0	31.0	31.0	1459.0	2368.0	
Uvas Reservoir	2703.9	2824.1	5987.7	1377.3	1104.1	557.6	500.0	3650.5	6247.4	6258.0	
cvp caryover	0.0	0.0	0.0	14741.9	0.0	0.0	0.0	0.0	0.0	52142.1	
cvp overflow not used	0.0	311024.1	592867.6	592867.6	592867.6	592867.6	592867.6	592867.6	592867.6	731079.4	
semitropic reservoir	242493.3	350000.0	350000.0	350000.0	340483.6	339006.8	318534.4	290629.7	273007.8	350000.0	
swp caryyover	0.0	7963.9	0.0	12188.7	0.0	0.0	0.0	0.0	0.0	34016.7	
swp overflow not used	0.0	167955.1	347427.6	347427.6	347427.6	347427.6	347427.6	347427.6	347427.6	388855.7	
Sum	276603.5	986667.0	1499323.6	1502028.1	1419125.5	1379416.9	1292263.6	1265289.9	1254713.6	1762656.3	
Groundwater Natural Recharge (Acre-foot)	Groundwater	Groundwater	Groundwater N	Groundwater N	Groundwater N	Groundwater	Groundwate	Groundwater	Groundwater	Groundwater N	Groundwater Na
Coyote Subbasin	2535.0	1326.9	5335.0	1838.8	1544.9	1101.9	1457.8	2541.2	3273.6	2141.8	183393.1
LlagasSubbasin	24664.6	19659.9	33521.4	20971.2	20239.6	19330.3	21198.0	22272.2	21962.7	22365.9	1888278.1
North County Santa Clara Sbb	39177.8	26853.8	56312.9	30423.5	26962.8	27176.6	25998.0	24763.5	29247.2	34205.1	2881697.9
Sum	66377.4	47840.6	95169.3	53233.5	48747.3	47608.8	48653.8	49576.9	54483.5	58712.8	4953369.1
Transmission Link Flow (Acre-foot)	Transmission	Transmission	Transmission Li	Transmission Li	Transmission Li	Transmission	Transmission	Transmission	Transmission	Transmission Li	Transmission Lin
Transmission Link from lake elsman to sjw west to SJ Water Company	12613.8	1362.0	14943.8	3997.9	3455.9	6503.9	3720.9	6431.9	3455.9	7405.9	815457.0
Transmission Link from stanford water to Stanford Moffett Field Ames	823.0	64.0	692.0	187.0	160.0	303.0	174.0	296.0	160.0	681.0	51733.2
Sum	13436.8	1426.0	15635.8	4184.9	3615.9	6806.9	3894.9	6727.9	3615.9	8086.9	867190.3
Transmission Link Flow (Acre-foot)	Transmission	Transmission	Transmission Li	Transmission Li	Transmission Li	Transmission	Transmission	Transmission	Transmission	Transmission Li	Transmission Lin
Transmission Link from SCRWA to Morgan Hill to Morgan Hill Service Are	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from deliver recycled to gilroy to Gilroy Service Ar	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	131196.6
Transmission Link from hecker pass recycled to Gilroy Service Area	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from morgan hill recycled to Morgan Hill Service Are	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from recycle pa to palo alto to Palo Alto Service Ar	1055.7	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	69136.2
Transmission Link from recycle sv to sunnyvale to Sunnyvale Service Ar	1900.0	1900.0	1900.0	1900.0	1900.0	1900.0	1900.0	1900.0	1900.0	1900.0	155797.7
Transmission Link from recycled 1 to Llagas Ag	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	98400.0
Transmission Link from recycled SB to SJWC to SJ Water Company	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	249415.8
Transmission Link from recycled SB to santa clara to Santa Clara Servi	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	383760.0
Transmission Link from recycled pa to mountain view to Mountain View S	994.2	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	98961.3

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Transmission Link from recycled sb to milpitas to Milpitas Service Are	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	172692.0
Transmission Link from recycled sb to sj muni north to SJ Muni North	9500.4	9839.7	9839.7	9839.7	9839.7	9839.7	9839.7	9839.7	9839.7	9839.7	806516.1
Transmission Link from recycled sb to sjMuni edenvale to SJ Muni servi	4071.6	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	306387.9
Sum	30149.6	30149.6	30149.6	30149.6	30149.6	30149.6	30149.6	30149.6	30149.6	30149.6	2472263.7
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission Li	Transmission Li	Transmission Li	Transmission L	Transmission	Transmission L	Transmission L	Transmission Li	Transmission Lin
Transmission Link from hh to PHills to Purisma Hills Service Area	1828.0	1828.0	1828.0	1828.0	1828.0	1516.0	1516.0	1516.0	1516.0	1828.0	147200.7
Transmission Link from hh to Sunnyvale to Sunnyvale Service Area	13249.0	13249.0	13249.0	13249.0	13249.0	10988.0	10988.0	10988.0	10988.0	13249.0	1066882.9
Transmission Link from hh to milpitas service area to Milpitas Service	8451.0	8451.0	8451.0	8451.0	8451.0	7008.8	7008.8	7008.8	7008.8	8451.0	680521.4
Transmission Link from hh to moffett ames to Stanford Moffett Field Am	3395.0	3395.0	3395.0	3395.0	3395.0	2815.6	2815.6	2815.6	2815.6	3395.0	273384.2
Transmission Link from hh to mountain view to Mountain View Service Ar	14487.4	14407.8	14407.8	14407.8	14407.8	12120.0	12120.0	12120.0	12120.0	14407.8	1161618.8
Transmission Link from hh to palo alto to Palo Alto Service Area	14295.5	14397.2	14397.2	14397.2	14397.2	12121.7	12121.7	12121.7	12121.7	14397.2	1160667.7
Transmission Link from hh to santa clara to Santa Clara Service Area	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from hh to sj muni n to SJ Muni North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sum	55705.9	55728.0	55728.0	55728.0	55728.0	46570.3	46570.3	46570.3	46570.3	55728.0	4490275.7
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission Li	Transmission Li	Transmission Li	Transmission L	Transmission	Transmission L	Transmission L	Transmission Li	Transmission Lin
Transmission Link from local stevens creek flood release to Tributary	0.0	0.0	35329.5	0.0	0.0	0.0	0.0	0.0	642.9	2069.0	397017.7
Transmission Link from local uvas flood release to Tributary Inflow 5	0.0	0.0	21317.2	0.0	0.0	0.0	0.0	1311.8	4927.0	5428.3	615891.7
Transmission Link from release from anderson to cvp pl to Anderson PL	420.5	26393.2	65195.0	28416.1	38522.2	17872.0	56072.0	11565.7	10075.2	32066.9	2423695.7
Transmission Link from release from calero to cvp pl to Calero PL rele	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from release from pacheco to Tributary Inflow 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sum	420.5	26393.2	121841.6	28416.1	38522.2	17872.0	56072.0	12877.6	15645.1	39564.3	3436605.1
Streamflow (below node or reach listed) (All Rivers) (Acre-foot)	Streamflow (b	Streamflow (b	Streamflow (be	Streamflow (be	Streamflow (be	Streamflow (b	Streamflow (	Streamflow (b	Streamflow (b	Streamflow (be	Streamflow (bel
SWP 1 Supply 0 \ Headflow	61999.1	10999.8	96998.6	29999.6	29999.6	56999.2	21999.7	27999.6	23999.6	63999.1	4939927.4
cvp 0 source supply 0 \ Headflow	121128.4	69175.9	152497.8	94555.5	64999.0	100323.6	64999.0	75023.6	81706.6	108114.6	8991576.1
Demand Site Inflows and Outflows (Demand Site: NC Coyote Pond Recharge	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from IPR Coyote	0.0	4999.9	4999.9	4999.9	4999.9	4999.9	4999.9	4999.9	4999.9	4999.9	404994.0
Inflow from Lower Coyote Creek	10233.1	475.1	475.1	475.1	475.1	475.1	475.1	349.2	395.7	475.1	48473.2
Inflow from cvp 3 santa clara conduit	390.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	390.4
Outflow to North County Santa Clara Sbb	-10623.5	-5475.0	-5475.0	-5475.0	-5475.0	-5475.0	-5475.0	-5349.1	-5395.6	-5475.0	-453857.7
Sum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Demand Site Inflows and Outflows (Demand Site: Ford Pond Recharge) (Acr	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from IPR Coyote	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Inflow from Lower Coyote Creek	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Outflow to North County Santa Clara Sbb	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Demand Site Inflows and Outflows (Demand Site: Los Gatos Ponds) (Acre-fo	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from IPR LG Ponds	0.0	19999.7	1643.8	18301.1	19999.7	19999.7	19999.7	19999.7	19999.7	19999.7	1355048.6
Inflow from Los Gatos Creek	4757.3	0.0	0.0	280.2	0.0	0.0	0.0	322.6	291.4	322.6	39006.9
Inflow from SWP 3 central pipeline	0.0	0.0	0.0	0.0	0.0	0.0	0.0	291.4	0.0	0.0	433.3
Inflow from cvp 7 central pl	16843.6	3798.3	312.2	3195.5	3798.3	3798.3	3798.3	3184.3	3506.9	3475.7	238628.9

	1922	**1977**	**1983**	**1987**	**1988**	**1989**	**1990**	**1991**	**1992**	**2002**	**Sum**
Outflow to North County Santa Clara Sbb	-21600.9	-23798.0	-1956.0	-21776.8	-23798.0	-23798.0	-23798.0	-23798.0	-23798.0	-23798.0	-1633117.7
Sum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Demand Site Inflows and Outflows (Demand Site: Almaden and Guadalupe I	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from Guadalupe Creek	6,371.30	385.6	660.00	2,586.10	1,644.20	3,113.80	2,701.40	5,176.90	6,079.70	6,259.10	425,628.50
Inflow from IPR Guadalupe	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inflow from SWP 4 almaden valley pipeline	126.80	1,107.30	0.00	1,122.00	124.50	0.00	0.00	1,226.50	823.90	667.30	23,353.50
Inflow from cvp 5 almaden valley pl	262.10	4,842.30	0.00	2,832.90	6,261.20	4,916.20	4,994.20	335.60	732.50	680.40	81,022.00
Outflow to North County Santa Clara Sbb	-6,760.20	-6,335.20	-660.00	-6,541.00	-8,030.00	-8,030.00	-7,695.60	-6,738.90	-7,636.10	-7,606.90	-530,003.90
Sum	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demand Site Inflows and Outflows (Demand Site: Kooser) (Acre-foot)	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from IPR Guadalupe	0.00	0	0.00	0.00	0	0	0	0	0	0.00	0.00
Inflow from SWP 4 almaden valley pipeline	47.00	241.6	48.00	387.20	31.9	0	0	323	260.4	584.00	23,642.80
Inflow from cvp 5 almaden valley pl	245.8	1,108.60	48	828.8	1,720.10	1,752.00	1,670.70	967.1	1,392.60	584.00	69,013.40
Outflow to North County Santa Clara Sbb	-292.80	-1,350.20	-96.00	-1,216.00	-1,752.00	-1,752.00	-1,670.70	-1,290.10	-1,653.00	-1,168.00	-92,656.20
Sum	0.00	0	0.00	0.00	0	0	0	0	0	0.00	0.00
Demand Site Inflows and Outflows (Demand Site: Los Capitancillos Ponds) (/	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from Guadalupe Creek	2,141.90	23	2,846.60	1,055.60	597.9	1,132.30	982.30	1,365.50	1,681.70	1,982.40	166,417.00
Inflow from IPR Guadalupe	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inflow from SWP 4 almaden valley pipeline	46.10	402.7	0.00	458.10	45.3	0.00	0	456.50	299.60	339.30	16,061.20
Inflow from cvp 5 almaden valley pl	95.30	1,824.60	0.00	1,112.80	2,276.80	1,787.70	1,816.10	427.60	795.50	408.00	43,956.70
Outflow to North County Santa Clara Sbb	-2,283.30	-2,250.30	-2,846.60	-2,626.50	-2,920.00	-2,920.00	-2,798.40	-2,249.50	-2,776.80	-2,729.60	-226,434.90
Sum	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demand Site Inflows and Outflows (Demand Site: Overfelt Ponds) (Acre-foo	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from IPR Penitencia	0	0	0.00	0	0	0	0	0	0	0	0.00
Inflow from Penitencia Creek	0	0	0.00	0.00	0	0	0	0	0	0	0.00
Inflow from SWP 2 SBA pipeline	450.7	1,460.00	1,460.00	1,460.00	1,460.00	1,460.00	1,460.00	1,460.00	1,460.00	1,460.00	117,638.60
Outflow to North County Santa Clara Sbb	-450.7	-1,460.00	-1,460.00	-1,460.00	-1,460.00	-1,460.00	-1,460.00	-1,460.00	-1,460.00	-1,460.00	-117,638.60
Sum	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Penitencia Ponds) (Acre-f	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site Infl
Inflow from IPR Penitencia	0	2,482.00	2,482.00	2,482.00	2,482.00	2,482.00	2,482.00	2,482.00	2,482.00	2,482.00	201,042.00
Inflow from Penitencia Creek	0	0	0.00	0.00	0.00	0	0	0	0	0	0.00
Inflow from SWP 2 SBA pipeline	766.20	0	0.00	0.00	0.00	0	0	0	0	0.00	766.20
Outflow to North County Santa Clara Sbb	-766.20	-2,482.00	-2,482.00	-2,482.00	-2,482.00	-2,482.00	-2,482.00	-2,482.00	-2,482.00	-2,482.00	-201,808.20
Sum	0	0	0	0	0	0	0	0	0	0	0
Transmission Link Flow (Acre-foot)	Transmission l	Transmission l	Transmission Li	Transmission Li	Transmission Li	Transmission l	Transmissior	Transmission l	Transmission l	Transmission Li	Transmission Lin
Transmission Link from Uvas release to Llagas recharge to Church Pond	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from anderson release to butterfield to Butterfield	0.00	0	0.00	0.00	0	0	0	0.00	0.00	0.00	0.00
Transmission Link from anderson release to madronne to Madrone Ponds	7,888.80	5,326.60	1,677.50	3,368.70	3,583.60	5,018.70	3,643.00	2,367.50	2,928.80	3,368.80	245,410.90
Transmission Link from lex pl 1 to Rinconanda WTP	0	2,983.40	44,099.50	10,995.60	2,864.00	4,251.10	2,994.10	5,890.50	12,278.70	11,209.00	1,469,157.60
Transmission Link from lex pl 10 to NC IWRP recharge	0	0	0	0	0	0	0	0	0	0	0

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	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Transmission Link from lex pl 2 to San Tomas Creek Recharge	0	0	0	0	0	0	0	0	0	54.2	1,221.50
Transmission Link from lex pl 3 to Wildcat Creek Recharge	0	0	0	0	0	0	0	0	0	35.2	870.9
Transmission Link from lex pl 4 to Saratoga Creek Recharge	0	0	30	0	0	0	0	0	0	293.2	6,708.50
Transmission Link from lex pl 5 to Rodeo Creek Recharge	0	0	459.9	0	0	0	0	68.9	47.7	80.9	11,653.80
Transmission Link from lex pl 6 to Calabazas Creek Recharge	0	0	374.4	0	0	0	0	0	0	106.4	9,652.00
Transmission Link from lex pl 7 to Regnart Creek Recharge	0	0	267.6	0	0	0	0	0	88.3	49.3	11,016.40
Transmission Link from lex pl 8 to Mcclellan Pond recharge	0	0	1,418.80	0	0	0	0	148.8	562.4	148.8	49,817.30
Transmission Link from lex pl 9 to Stevens Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local 2 coyote pond recharge to Coyote Pond Rec	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transmission Link from local 2 guad creek to Guadalupe creek	5,618.30	340	7,081.00	2,881.80	1,449.90	2,745.80	2,382.20	4,565.10	5,361.20	5,519.40	468,898.60
Transmission Link from local 2 lower coyote recharge to lower coyote r	1,460.00	1,460.00	1,460.00	1,460.00	1,460.00	1,460.00	1,460.00	1,228.40	1,344.20	1,460.00	119,372.50
Transmission Link from local 2 overfelt to Overfelt Ponds	0	0	0.00	0	0	0	0	0	0	0	0.00
Transmission Link from local 2 pen ponds to Penitencia Ponds	0	0	0.00	0	0	0	0	0	0	0	0.00
Transmission Link from local 2 upper coyote to NC Upper Coyote Recharg	171.7	171.7	12	159.3	171.7	171.7	171.7	148.5	160.1	171.7	11,788.60
Transmission Link from local Chesbro release to recharge to Church Pon	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transmission Link from local Uvas release to recharge to Uvas Recharge	10,117.80	1,787.30	3,381.80	6,791.40	4,569.60	9,556.80	6,277.10	8,713.50	9,286.20	6,791.40	546,233.60
Transmission Link from local alamitos creek to Alamitos Creek recharge	1,106.50	101.70	2,168.60	852.40	447.00	849.20	736.8	1,042.90	1,405.70	1,305.10	129,527.00
Transmission Link from local anderson 2 coyote ponds to NC Coyote Pond	10,233.10	475.10	475.10	475.10	475.10	475.1	475.1	349.20	395.70	475.10	48,473.20
Transmission Link from local anderson release to main ave ponds to Mai	2,122.80	1,870.50	451.4	906.50	1,070.90	1,575.60	980.3	751.3	797.9	906.50	66,708.90
Transmission Link from local anderson res to Church Pond and Llagas Re	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local anderson res to Lower Llagas Recharge	0.00	0	0.00	0	0	0	0	0	0.00	0.00	0.00
Transmission Link from local calabasas creek to Calabazas Creek Rechar	1,149.00	236	1,474.40	141	353	200	50	374.4	1,015.20	1,869.00	72,406.70
Transmission Link from local calero creek to Calero Creek recharge	724.00	43	912.50	371.40	186.8	353.80	307.00	588.30	689.00	711.30	60,267.30
Transmission Link from local guadalupe 1 to Los Capitancillos Ponds	2,141.90	23	2,846.60	1,055.60	597.9	1,132.30	982.30	1,365.50	1,681.70	1,982.40	166,417.00
Transmission Link from local guadaupe 2 to Almaden and Guadalupe Pond	6,371.30	385.6	660.00	2,586.10	1,644.20	3,113.80	2,701.40	5,176.90	6,079.70	6,259.10	425,628.50
Transmission Link from local lg creek diversion to Los Gatos Ck rechar	0.00	0.00	3,392.00	0.00	0.00	0.00	0.00	496.00	448.00	496.00	88,223.00
Transmission Link from local lg pond diversion to Los Gatos Ponds	4,757.30	0.00	0.00	280.20	0.00	0.00	0.00	322.60	291.40	322.60	39,006.90
Transmission Link from local lower Llagas recharge to Lower Llagas Rec	2,980.30	294.6	2,415.60	2,473.20	375.7	491.5	1,443.90	4,340.00	6,130.20	4,023.90	311,069.70
Transmission Link from local penitencia creek to Penitencia Creek Rech	1,335.80	164	180	475	334	484	227	410	747	1,198.00	64,131.10
Transmission Link from local regnart creek to Regnart Creek Recharge	276.7	14	366.3	15	20	4	1	73.3	189.4	451.7	16,995.90
Transmission Link from local release 2 ford ponds to Ford Pond Recharg	0.00	0.00	0.00	0.00	0.00	0	0	0.00	0.00	0.00	0.00
Transmission Link from local release 2 upper coyote to Coyote Upper Re	15,284.40	15,768.70	10,228.70	15,768.70	14,283.70	15,768.70	14,402.50	14,114.40	14,621.90	15,768.70	1,186,366.80
Transmission Link from local rodeo creek to Rodeo Creek Recharge	67.6	2	126.00	2	3	0	0	16	50	178.7	5,041.90
Transmission Link from local ross creek recharge to Ross Creek Recharg	863.8	290	1,234.00	487	421	364	364	517	633	888	57,927.10
Transmission Link from local san tomoa creek to San Tomas Creek Rechar	691.4	188.5	822.4	299.1	271.5	170.3	233.9	311.8	388.5	771.9	48,813.60
Transmission Link from local saratoga div to NC IWRP recharge	0.00	0	0.00	0.00	0	0.00	0	0	0.00	0.00	0.00
Transmission Link from local saratogo creek to Saratoga Creek Recharge	2,683.40	648	3,604.40	1,133.00	593	1,203.20	981	958.2	1,846.00	3,512.20	185,108.40
Transmission Link from local silver creek to Silver Creek Recharge	722.40	85	730.00	715.00	331.00	93.00	262.00	58.00	103.00	730.00	53,071.30
Transmission Link from local stevens creek to Stevens Creek Recharge	2,561.20	597.7	3,650.00	3,650.00	2,422.40	1,437.40	1,362.20	2,691.50	3,631.60	3,650.00	272,742.70
Transmission Link from local thompson creek to Thompson Creek Recharg	750.7	47	1,090.00	617	362	52	178	32	109	927	54,156.00
Transmission Link from local wildcat creek to Wildcat Creek Recharge	443.50	122.50	534.50	194.40	176.50	110.70	152.10	202.70	252.50	484.10	30,533.50
Sum	82,523.60	33,425.80	97,624.90	58,154.50	38,467.60	51,082.90	42,768.40	57,323.00	73,563.70	76,199.40	6,334,418.90
demand_reduction_fctr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

Strategy B01

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Groundwater Storage (Acre-foot)	Groundwater S	Groundwater S	Groundwater S	Groundwater S	Groundwater S	Groundwater S	Groundwater S	Groundwater S	Groundwater S	Groundwater Storage (Acre-foot)	
Coyote Subbasin	19,795.50	8,655.10	22,721.60	22,851.50	11,670.60	0	0	24.4	2,450.20	22,221.30	
LlagasSubbasin	80,063.00	111,605.30	144,074.20	135,312.70	120,094.90	106,131.50	93,470.90	95,851.50	104,626.20	143,617.90	
North County Santa Clara Sbb	278,073.40	181,189.70	327,165.40	288,378.40	205,078.30	162,369.00	38,464.20	53,416.60	108,883.60	315,014.30	
Sum	377,931.90	301,450.10	493,961.20	446,542.60	336,843.80	268,500.50	131,935.10	149,292.60	215,960.10	480,853.50	
Reservoir Storage Volume (Acre-foot)	Reservoir Stor	Reservoir Stor	Reservoir Stora	Reservoir Stora	Reservoir Stora	Reservoir Stor	Reservoir Stor	Reservoir Stor	Reservoir Stor	Reservoir Storage Volume (Acre-	
Almaden Reservoir	200	200	200	200	200	200	200	200	200	351	
Anderson Reservoir	22,000.00	22,000.00	69,388.30	33,458.90	21,939.30	21,954.30	21,550.40	22,000.00	22,000.00	44,536.30	
Calero Reservoir	1,000.00	689.8	4,629.10	1,000.00	932.6	1,000.00	1,000.00	993.9	2,233.30	4,457.50	
Chesbro Reservoir	500	500	4,586.00	500	436.5	451.7	500	500	1,293.40	4,586.00	
Coyote Reservoir	1,000.00	1,000.00	5,200.00	5,200.00	997.2	993.7	910.4	1,000.00	1,000.00	5,200.00	
Guadalupe Reservoir	200	168.9	1,188.00	200	200	200	200	200	200	1,188.00	
Lexington Reservoir	1,475.30	554.4	16,000.00	3,599.30	1,079.70	473.8	197	1,818.90	3,993.50	9,240.20	
Pacheco Reservoir	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	
Stevens Creek Reservoir	31	181.5	2,368.00	583.6	31	31	31	31	1,609.50	2,368.00	
Uvas Reservoir	2,703.90	2,824.10	5,987.70	997.6	1,104.10	557.6	500	3,963.60	6,258.00	6,258.00	
cvp caryover	0	0	0	0.00	0	0	0	0	0	5,134.20	
cvp overflow not used	0	13,874.80	142,321.30	142,321.30	142,321.30	142,321.30	142,321.30	142,321.30	142,321.30	156,141.70	
semitropic reservoir	242,493.30	39,667.30	93,834.60	74,788.00	35,802.40	6,087.60	0.00	0.00	0.00	101,758.30	
swp caryyover	0	0	0	0.00	0	0	0	0	0	3,871.50	
swp overflow not used	0	0.00	43,193.60	43,193.60	43,193.60	43,193.60	43,193.60	43,193.60	43,193.60	43,193.60	
Sum	276,603.50	86,660.80	393,896.70	311,042.20	253,237.80	222,464.70	215,603.80	221,222.30	229,302.60	393,284.30	
Groundwater Natural Recharge (Acre-foot)	Groundwater N	Groundwater N	Groundwater N	Groundwater N	Groundwater N	Groundwater N	Groundwater N	Groundwater N	Groundwater N	Groundwater N	Groundwater Nat
Coyote Subbasin	2,535.00	1,326.90	5,335.00	1,838.80	1,544.90	1,101.90	1,457.80	2,541.20	3,273.60	2,141.80	183,393.10
LlagasSubbasin	24,664.60	19,659.90	33,521.40	20,971.20	20,239.60	19,330.30	21,198.00	22,272.20	21,962.70	22,365.90	1,888,278.10
North County Santa Clara Sbb	39,177.80	26,853.80	56,312.90	30,423.50	26,962.80	27,176.60	25,998.00	24,763.50	29,247.20	34,205.10	2,881,697.90
Sum	66,377.40	47,840.60	95,169.30	53,233.50	48,747.30	47,608.80	48,653.80	49,576.90	54,483.50	58,712.80	4,953,369.10
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission L	Transmission L	Transmission L	Transmission L	Transmission L	Transmission L	Transmission L	Transmission L	Transmission Lin
Transmission Link from lake elsman to sjw west to SJ Water Company	12,613.80	1,362.00	14,943.80	3,997.90	3,455.90	6,503.90	3,720.90	6,431.90	3,455.90	7,405.90	815,457.00
Transmission Link from stanford water to Stanford Moffett Field Ames	823	64	692	187	160	303	174	296	160	681	51,733.20
Sum	13,436.80	1,426.00	15,635.80	4,184.90	3,615.90	6,806.90	3,894.90	6,727.90	3,615.90	8,086.90	867,190.30
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission L	Transmission L	Transmission L	Transmission L	Transmission L	Transmission L	Transmission L	Transmission L	Transmission Lin
Transmission Link from SCRWA to Morgan Hill to Morgan Hill Service Are	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from deliver recycled to gilroy to Gilroy Service Ar	1,600.00	1,600.00	1,600.00	1,600.00	1,600.00	1,600.00	1,600.00	1,600.00	1,600.00	1,600.00	131,196.60
Transmission Link from hecker pass recycled to Gilroy Service Area	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from morgan hill recycled to Morgan Hill Service Are	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from recycle pa to palo alto to Palo Alto Service Ar	1,055.80	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	69,136.20
Transmission Link from recycle sv to sunnyvale to Sunnyvale Service Ar	1,900.00	2,400.00	2,400.00	2,400.00	2,400.00	2,400.00	2,400.00	2,400.00	2,400.00	2,400.00	196,297.10
Transmission Link from recycled 1 to Llagas Ag	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	98,400.00
Transmission Link from recycled SB to SJWC to SJ Water Company	3,041.70	3,041.70	3,041.70	3,041.70	3,041.70	3,041.70	3,041.70	3,393.00	85.50	3,041.70	240,453.20
Transmission Link from recycled SB to santa clara to Santa Clara Servi	4,680.00	4,680.00	4,680.00	4,680.00	4,680.00	4,680.00	4,680.00	4,680.00	4,680.00	4,680.00	383,760.00
Transmission Link from recycled pa to mountain view to Mountain View S	994.2	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	98,961.30

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Transmission Link from recycled sb to milpitas to Milpitas Service Are	2,106.00	2,106.00	2,106.00	2,106.00	2,106.00	2,106.00	2,106.00	2,106.00	2,106.00	2,106.00	172,692.00
Transmission Link from recycled sb to sj muni north to SJ Muni North	9,500.40	9,839.70	9,839.70	9,839.70	9,839.70	9,839.70	9,839.70	9,304.80	8,012.70	9,839.70	804,154.20
Transmission Link from recycled sb to sjMuni edenvale to SJ Muni servi	4,071.60	3,732.30	3,732.30	3,732.30	3,732.30	3,732.30	3,732.30	3,732.30	3,732.30	3,732.30	306,387.90
Sum	30,149.60	30,649.50	30,649.50	30,649.50	30,649.50	30,649.50	30,649.50	30,466.00	25,866.40	30,649.50	2,501,438.60
Transmission Link Flow (Acre-foot)	Transmission I	Transmission I	Transmission L	Transmission L	Transmission L	Transmission I	Transmission I	Transmission I	Transmission I	Transmission L	Transmission Lin
Transmission Link from hh to PHills to Purisma Hills Service Area	1,828.00	1,828.00	1,828.00	1,828.00	1,828.00	1,516.00	1,516.00	1,516.00	1,516.00	1,828.00	147,200.70
Transmission Link from hh to Sunnyvale to Sunnyvale Service Area	13,249.00	13,249.00	13,249.00	13,249.00	13,249.00	10,988.00	10,988.00	10,988.00	10,982.80	13,249.00	1,066,877.70
Transmission Link from hh to milpitas service area to Milpitas Service	8,451.00	8,451.00	8,451.00	8,451.00	8,451.00	7,008.80	7,008.80	7,008.80	6,890.20	8,451.00	680,402.70
Transmission Link from hh to moffett ames to Stanford Moffett Field Am	3,395.00	3,395.00	3,395.00	3,395.00	3,395.00	2,815.60	2,815.60	2,815.60	2,815.60	3,395.00	273,384.20
Transmission Link from hh to mountain view to Mountain View Service Ar	14,487.40	14,407.80	14,407.80	14,407.80	14,407.80	12,120.00	12,120.00	9,259.30	7,165.50	14,407.80	1,145,300.40
Transmission Link from hh to palo alto to Palo Alto Service Area	14,295.50	14,397.20	14,397.20	14,397.20	14,397.20	12,121.70	12,121.70	9,352.60	7,314.00	14,397.20	1,144,648.20
Transmission Link from hh to santa clara to Santa Clara Service Area	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from hh to sj muni n to SJ Muni North	0	0	0	0	0	0	0	0	0	0	0
Sum	55,705.90	55,728.00	55,728.00	55,728.00	55,728.00	46,570.30	46,570.30	40,940.40	36,684.20	55,728.00	4,457,813.90
Transmission Link Flow (Acre-foot)	Transmission I	Transmission I	Transmission L	Transmission L	Transmission L	Transmission I	Transmission I	Transmission I	Transmission I	Transmission L	Transmission Lin
Transmission Link from local stevens creek flood release to Tributary	0	0	0.00	0	0	0	0	0	0	0.00	0.00
Transmission Link from local uvas flood release to Tributary Inflow 5	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from release from anderson to cvp pl to Anderson PL	420.5	7,958.00	60,592.60	10,985.00	8,589.00	970.6	442.7	6,355.40	8,646.70	6,096.30	926,771.20
Transmission Link from release from calero to cvp pl to Calero PL rele	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from release from pacheco to Tributary Inflow 6	0	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sum	420.5	7,958.00	60,592.60	10,985.00	8,589.00	970.60	442.70	6,355.40	8,646.70	6,096.30	926,771.20
Streamflow (below node or reach listed) (All Rivers) (Acre-foot)	Streamflow (be	Streamflow (be	Streamflow (bel	Streamflow (bel	Streamflow (bel	Streamflow (be	Streamflow (be	Streamflow (be	Streamflow (be	Streamflow (bel	Streamflow (belov
SWP 1 Supply 0 \ Headflow	61,999.10	10,999.80	96,998.60	29,999.60	29,999.60	56,999.20	21,999.70	27,999.60	23,999.60	63,999.10	4,939,927.40
cvp 0 source supply 0 \ Headflow	121,128.40	69,175.90	152,497.80	94,555.50	64,999.00	100,323.60	64,999.00	75,023.60	81,706.60	108,114.60	8,991,576.10
Demand Site Inflows and Outflows (Demand Site: NC Coyote Pond Recharge)	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site Inflo
Inflow from IPR Coyote	0	4,999.90	4,999.90	4,999.90	4,999.90	4,999.90	4,999.90	4,999.90	4,999.90	4,999.90	404,994.00
Inflow from Lower Coyote Creek	10,233.10	76.80	475.10	475.10	355.30	98.4	156.2	273.00	340.90	475.10	47,078.70
Inflow from cvp 3 santa clara conduit	390.4	0	0	0	0	40.3	0	0	0	0	433.30
Outflow to North County Santa Clara Sbb	-10,623.50	-5,076.70	-5,475.00	-5,475.00	-5,355.30	-5,138.70	-5,156.10	-5,272.90	-5,340.90	-5,475.00	-452,506.10
Sum	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Ford Pond Recharge) (Acre-f	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site Inflo
Inflow from IPR Coyote	0	0	0	0	0	0	0	0	0	0	0
Inflow from Lower Coyote Creek	0	0	0	0	0	0	0	0	0	0	0
Outflow to North County Santa Clara Sbb	0	0	0	0	0	0	0	0	0	0	0
Sum	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Los Gatos Ponds) (Acre-foot)	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site Inflo
Inflow from IPR LG Ponds	0	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inflow from Los Gatos Creek	4,757.30	3,472.00	19,820.80	8,972.90	3,985.60	4,117.00	3,158.90	5,323.90	9,576.60	10,748.80	1,061,066.50
Inflow from SWP 3 central pipeline	0	0	0	60.2	230.2	0	0	0	0	4,828.60	72,721.90
Inflow from cvp 7 central pl	16,843.60	1,370.70	0	1,855.20	2,238.50	7,336.40	0	0.00	0.00	6,098.20	330,696.70

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	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Outflow to North County Santa Clara Sbb	-21,600.90	-4,842.70	-19,820.80	-10,888.40	-6,454.20	-11,453.40	-3,158.90	-5,323.90	-9,576.60	-21,675.60	-1,464,485.20
Sum	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Almaden and Guadalupe Po	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site Inflo
Inflow from Guadalupe Creek	6,371.30	385.6	6,688.00	2,582.50	1,644.20	3,113.80	2,701.40	5,176.90	6,079.70	6,259.10	457,670.60
Inflow from IPR Guadalupe	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 4 almaden valley pipeline	126.8	0.00	0	902.00	0	0	0	0	0	667.3	11,787.50
Inflow from cvp 5 almaden valley pl	262.1	0.00	0	1,659.00	227.7	0	0	0	0	680.4	39,651.90
Outflow to North County Santa Clara Sbb	-6,760.20	-385.60	-6,688.00	-5,143.50	-1,871.90	-3,113.80	-2,701.40	-5,176.90	-6,079.70	-7,606.90	-509,109.90
Sum	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Kooser) (Acre-foot)	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site Inflo
Inflow from IPR Guadalupe	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 4 almaden valley pipeline	47	0	436.8	339.2	0	0	0	0	0	584	16,027.90
Inflow from cvp 5 almaden valley pl	245.8	0	585.6	561.8	229	148.8	0	0	103.8	584	57,783.00
Outflow to North County Santa Clara Sbb	-292.8	0	-1,022.40	-901.00	-229	-148.8	0	0	-103.8	-1,168.00	-73,810.90
Sum	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Los Capitancillos Ponds) (Ac	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site Inflo
Inflow from Guadalupe Creek	2,141.90	23	2,448.10	1,054.30	597.9	1,132.30	982.3	1,365.50	1,681.70	1,982.40	164,722.90
Inflow from IPR Guadalupe	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 4 almaden valley pipeline	46.1	0	82.7	328	0	0	0	0	0	339.3	10,319.50
Inflow from cvp 5 almaden valley pl	95.3	0	82.7	603.30	82.8	0	0	0	0	408	27,726.60
Outflow to North County Santa Clara Sbb	-2,283.30	-23	-2,613.40	-1,985.60	-680.7	-1,132.30	-982.3	-1,365.50	-1,681.70	-2,729.60	-202,769.00
Sum	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Overfelt Ponds) (Acre-foot)	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site Inflo
Inflow from IPR Penitencia	0	0	0	0	0	0	0	0	0	0	0
Inflow from Penitencia Creek	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 2 SBA pipeline	450.7	204.8	1,460.00	1,460.00	244	768.3	0	0	0	1,460.00	95,740.70
Outflow to North County Santa Clara Sbb	-450.7	-204.8	-1,460.00	-1,460.00	-244	-768.3	0	0	0	-1,460.00	-95,740.70
Sum	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Penitencia Ponds) (Acre-foot	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site Inflo
Inflow from IPR Penitencia	0	0	0	0	0	0	0	0	0	0	0
Inflow from Penitencia Creek	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 2 SBA pipeline	766.2	348.10	2,482.00	2,482.00	414.8	1,306.00	0	0	0	2,482.00	162,759.10
Outflow to North County Santa Clara Sbb	-766.2	-348.10	-2,482.00	-2,482.00	-414.8	-1,306.00	0	0	0	-2,482.00	-162,759.10
Sum	0	0	0	0	0	0	0	0	0	0	0
Transmission Link Flow (Acre-foot)	Transmission I	Transmission I	Transmission L	Transmission L	Transmission L	Transmission I	Transmission I	Transmission I	Transmission I	Transmission L	Transmission Lin
Transmission Link from Uvas release to Llagas recharge to Church Pond	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transmission Link from anderson release to butterfield to Butterfield	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from anderson release to madronne to Madrone Ponds	7,888.80	811.2	1,677.50	3,368.70	1,650.00	0	0	1,000.00	1,137.40	3,368.80	251,032.50
Transmission Link from lex pl 1 to Rinconanda WTP	0	0.00	0.00	0.00	0	0.00	0	0.00	0.00	0.00	0.00
Transmission Link from lex pl 10 to NC IWRP recharge	0	0	0	0	0	0	0	0	0	0	0

Strategy B01

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Transmission Link from lex pl 2 to San Tomas Creek Recharge	0	0	0	0	0	0	0	0	0	0	0.00
Transmission Link from lex pl 3 to Wildcat Creek Recharge	0	0	0	0	0	0	0	0	0	0	0.00
Transmission Link from lex pl 4 to Saratoga Creek Recharge	0	0	0	0	0	0	0	0	0	0	0.00
Transmission Link from lex pl 5 to Rodeo Creek Recharge	0	0	0	0	0	0	0	0	0	0	0.00
Transmission Link from lex pl 6 to Calabazas Creek Recharge	0	0	0	0	0	0	0	0	0	0	0.00
Transmission Link from lex pl 7 to Regnart Creek Recharge	0	0	0	0	0	0	0	0	0	0	0.00
Transmission Link from lex pl 8 to Mcclellan Pond recharge	0	0	0.00	0	0	0	0	0	0	0	0.00
Transmission Link from lex pl 9 to Stevens Creek Recharge	0	0	0	0	0	0	0	0	0	0	0.00
Transmission Link from local 2 coyote pond recharge to Coyote Pond Rec	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local 2 guad creek to Guadalupe creek	5,618.30	340	7,081.00	2,878.70	1,449.90	2,745.80	2,382.20	4,565.10	5,361.20	5,519.40	466,934.90
Transmission Link from local 2 lower coyote recharge to lower coyote r	1,460.00	431.9	1,460.00	1,460.00	1,092.00	429.5	574.7	856	1,092.00	1,460.00	115,414.60
Transmission Link from local 2 overfelt to Overfelt Ponds	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local 2 pen ponds to Penitencia Ponds	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local 2 upper coyote to NC Upper Coyote Recharg	171.7	45.8	144.3	159.3	134.9	45.9	64.3	111.3	134.9	171.7	12,076.00
Transmission Link from local Chesbro release to recharge to Church Pon	0	0	0.00	0.00	0	0	0	0.00	0.00	0.00	0.00
Transmission Link from local Uvas release to recharge to Uvas Recharge	10,117.80	1,787.30	3,381.80	6,791.40	4,324.40	9,556.80	6,995.30	8,713.50	10,117.80	6,791.40	604,565.10
Transmission Link from local alamitos creek to Alamitos Creek recharge	1,106.50	101.7	2,019.40	851.4	447	849.2	736.8	1,042.90	1,405.70	1,305.10	128,814.70
Transmission Link from local anderson 2 coyote ponds to NC Coyote Pond	10,233.10	76.80	475.10	475.10	355.30	98.4	156.2	273.00	340.90	475.10	47,078.70
Transmission Link from local anderson release to main ave ponds to Mai	2,122.80	436.6	451.4	1,345.10	773.3	0	0	500	537	906.50	76,206.40
Transmission Link from local anderson res to Church Pond and Llagas Re	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local anderson res to Lower Llagas Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local calabasas creek to Calabazas Creek Rechar	1,149.00	236	1,474.40	141	353	200	50	374.4	1,015.20	1,869.00	72,406.70
Transmission Link from local calero creek to Calero Creek recharge	724	43	912.5	371	186.8	353.8	307	588.3	689	711.3	60,003.10
Transmission Link from local guadalupe 1 to Los Capitancillos Ponds	2,141.90	23	2,448.10	1,054.30	597.9	1,132.30	982.3	1,365.50	1,681.70	1,982.40	164,722.90
Transmission Link from local guadaupe 2 to Almaden and Guadalupe Ponds	6,371.30	385.6	6,688.00	2,582.50	1,644.20	3,113.80	2,701.40	5,176.90	6,079.70	6,259.10	457,670.60
Transmission Link from local lg creek diversion to Los Gatos Ck rechar	0	248.5	5,840.00	2,620.60	289.5	496	43.1	496	1,913.60	992	229,578.20
Transmission Link from local lg pond diversion to Los Gatos Ponds	4,757.30	3,472.00	19,820.80	8,972.90	3,985.60	4,117.00	3,158.90	5,323.90	9,576.60	10,748.80	1,061,066.50
Transmission Link from local lower Llagas recharge to Lower Llagas Rec	2,980.30	294.6	2,415.60	1,912.10	383	484.2	1,466.60	4,340.00	6,435.90	4,023.90	334,821.30
Transmission Link from local penitencia creek to Penitencia Creek Rech	1,335.80	164	1,548.00	579	334	484	227	410	747	1,198.00	71,037.80
Transmission Link from local regnart creek to Regnart Creek Recharge	276.7	14	366.3	15	20	4	1	73.3	189.4	451.7	16,995.90
Transmission Link from local release 2 ford ponds to Ford Pond Recharg	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local release 2 upper coyote to Coyote Upper Re	15,284.40	2,336.40	10,228.70	15,768.70	3,940.20	38.6	0	7,641.10	8,430.80	14,168.90	1,090,462.90
Transmission Link from local rodeo creek to Rodeo Creek Recharge	67.6	2	126	2	3	0	0	16	50	178.7	5,041.90
Transmission Link from local ross creek recharge to Ross Creek Recharg	863.8	290	1,234.00	487	421	364	364	517	633	888	57,927.10
Transmission Link from local san tomoa creek to San Tomas Creek Rechar	691.4	188.5	822.4	299.1	271.5	170.3	233.9	311.8	388.5	771.9	48,813.60
Transmission Link from local saratoga div to NC IWRP recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local saratogo creek to Saratoga Creek Recharge	2,683.40	648	3,604.40	1,133.00	593	1,203.20	981	958.2	1,846.00	3,512.20	185,108.40
Transmission Link from local silver creek to Silver Creek Recharge	722.4	85	730	715	331	93	262	58	103	730	53,071.30
Transmission Link from local stevens creek to Stevens Creek Recharge	2,561.20	599.6	3,650.00	3,650.00	2,484.30	1,437.40	1,362.20	2,691.50	3,631.60	3,650.00	273,404.70
Transmission Link from local thompson creek to Thompson Creek Recharge	750.7	47	1,090.00	617	362	52	178	32	109	927	54,156.00
Transmission Link from local wildcat creek to Wildcat Creek Recharge	443.5	122.5	534.5	194.4	176.5	110.7	152.1	202.7	252.5	484.1	30,533.50
Sum	82,523.60	13,231.00	80,224.10	58,444.30	26,603.30	27,580.10	23,379.80	47,638.20	63,899.40	73,544.70	5,968,945.40
demand_reduction_fctr	0	0	0	0	0	0	-0.05	-0.38	-0.5	0	

Strategy B03

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Groundwater Storage (Acre-foot)	Groundwater	Groundwater	Groundwater S	Groundwater S	Groundwater S	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater Storage (Acre-fo	
Coyote Subbasin	19795.5	8776.9	22463.3	22965.4	10934.2	0.0	0.0	146.0	1182.2	23576.9	
LlagasSubbasin	80063.0	113669.3	143925.6	137985.0	121916.4	107762.9	93890.7	90755.7	94015.1	142471.4	
North County Santa Clara Sbb	278073.4	212928.5	333974.4	303747.7	242100.7	214561.4	118722.9	94815.8	114767.6	330978.1	
Sum	377931.9	335374.7	500363.3	464698.1	374951.3	322324.3	212613.6	185717.5	209964.8	497026.4	
Reservoir Storage Volume (Acre-foot)	Reservoir Stor	Reservoir Stor	Reservoir Stora	Reservoir Stora	Reservoir Stora	Reservoir Stor	Reservoir Stor	Reservoir Stor	Reservoir Stor	Reservoir Storage Volume (Acr	
Almaden Reservoir	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	351.0	
Anderson Reservoir	22000.0	22000.0	69864.0	33206.5	21939.3	21954.3	21550.4	22000.0	22000.0	51000.1	
Calero Reservoir	1000.0	693.5	5600.0	1000.0	932.6	1000.0	1000.0	993.9	2233.3	4457.5	
Chesbro Reservoir	500.0	500.0	4586.0	500.0	443.7	451.7	500.0	500.0	1293.4	4586.0	
Coyote Reservoir	1000.0	1000.0	5200.0	5200.0	997.2	993.7	910.4	1000.0	1000.0	5200.0	
Guadalupe Reservoir	200.0	168.9	1188.0	200.0	200.0	200.0	200.0	200.0	200.0	1188.0	
Lexington Reservoir	1475.3	2111.6	16000.0	11634.0	4431.0	1782.5	680.2	2342.0	6646.3	16000.0	
Pacheco Reservoir	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	
Stevens Creek Reservoir	31.0	181.5	2368.0	583.6	31.0	31.0	31.0	31.0	1609.5	2368.0	
Uvas Reservoir	2703.9	2824.1	5987.7	1490.7	1104.1	557.6	500.0	3963.6	6258.0	6258.0	
cvp caryover	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17494.3	
cvp overflow not used	0.0	30782.8	182395.3	182395.3	182395.3	182395.3	182395.3	182395.3	182395.3	196374.4	
semitropic reservoir	242493.3	179504.1	255412.9	247198.8	209588.5	179806.7	144070.9	106155.1	70157.0	168872.3	
swp caryyover	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12111.6	
swp overflow not used	0.0	0.0	45733.4	45733.4	45733.4	45733.4	45733.4	45733.4	45733.4	46630.0	
Sum	276603.5	244966.5	599535.3	534342.4	472996.2	440106.2	402771.7	370514.3	344726.2	537891.3	
Groundwater Natural Recharge (Acre-foot)	Groundwater	Groundwater	Groundwater N	Groundwater N	Groundwater N	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater N	Groundwater N
Coyote Subbasin	2535.0	1326.9	5335.0	1838.8	1544.9	1101.9	1457.8	2541.2	3273.6	2141.8	183393.1
LlagasSubbasin	24664.6	19659.9	33521.4	20971.2	20239.6	19330.3	21198.0	22272.2	21962.7	22365.9	1888278.1
North County Santa Clara Sbb	39177.8	26853.8	56312.9	30423.5	26962.8	27176.6	25998.0	24763.5	29247.2	34205.1	2881697.9
Sum	66377.4	47840.6	95169.3	53233.5	48747.3	47608.8	48653.8	49576.9	54483.5	58712.8	4953369.1
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission Li	Transmission Li	Transmission Li	Transmission L	Transmission L	Transmission L	Transmission L	Transmission Li	Transmission Li
Transmission Link from lake elsman to sjw west to SJ Water Company	12613.8	1362.0	14943.8	3997.9	3455.9	6503.9	3720.9	6431.9	3455.9	7405.9	815457.0
Transmission Link from stanford water to Stanford Moffett Field Ames	823.0	64.0	692.0	187.0	160.0	303.0	174.0	296.0	160.0	681.0	51733.2
Sum	13436.8	1426.0	15635.8	4184.9	3615.9	6806.9	3894.9	6727.9	3615.9	8086.9	867190.3
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission Li	Transmission Li	Transmission Li	Transmission L	Transmission L	Transmission L	Transmission L	Transmission Li	Transmission Li
Transmission Link from SCRWA to Morgan Hill to Morgan Hill Service Are	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from deliver recycled to gilroy to Gilroy Service Ar	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	131196.6
Transmission Link from hecker pass recycled to Gilroy Service Area	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from morgan hill recycled to Morgan Hill Service Are	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from recycle pa to palo alto to Palo Alto Service Ar	1055.8	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	69136.2
Transmission Link from recycle sv to sunnyvale to Sunnyvale Service Ar	1900.0	2400.0	2400.0	2400.0	2400.0	2400.0	2400.0	2400.0	2400.0	2400.0	196297.1
Transmission Link from recycled 1 to Llagas Ag	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	98400.0
Transmission Link from recycled SB to SJWC to SJ Water Company	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	249415.8
Transmission Link from recycled SB to santa clara to Santa Clara Servi	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	383760.0
Transmission Link from recycled pa to mountain view to Mountain View S	994.2	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	98961.3

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	1922	**1977**	**1983**	**1987**	**1988**	**1989**	**1990**	**1991**	**1992**	**2002**	**Sum**
Transmission Link from recycled sb to milpitas to Milpitas Service Are	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	172692.0
Transmission Link from recycled sb to sj muni north to SJ Muni North	9500.4	9839.7	9839.7	9839.7	9839.7	9839.7	9839.7	9839.7	9839.7	9839.7	806516.1
Transmission Link from recycled sb to sjMuni edenvale to SJ Muni servi	4071.6	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	306387.9
Sum	30149.6	30649.5	30649.5	30649.5	30649.5	30649.5	30649.5	30649.5	30649.5	30649.5	2512763.1
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission Li	Transmission Li	Transmission Li	Transmission L	Transmission L	Transmission L	Transmission L	Transmission Li	Transmission Li
Transmission Link from hh to PHills to Purisma Hills Service Area	1828.0	1828.0	1828.0	1828.0	1828.0	1516.0	1516.0	1516.0	1516.0	1828.0	147200.7
Transmission Link from hh to Sunnyvale to Sunnyvale Service Area	13249.0	13249.0	13249.0	13249.0	13249.0	10988.0	10988.0	10988.0	10988.0	13249.0	1066882.9
Transmission Link from hh to milpitas service area to Milpitas Service	8451.0	8451.0	8451.0	8451.0	8451.0	7008.8	7008.8	7008.8	7008.8	8451.0	680521.4
Transmission Link from hh to moffett ames to Stanford Moffett Field Am	3395.0	3395.0	3395.0	3395.0	3395.0	2815.6	2815.6	2815.6	2815.6	3395.0	273384.2
Transmission Link from hh to mountain view to Mountain View Service Ar	14487.4	14407.8	14407.8	14407.8	14407.8	12120.0	12120.0	12101.1	11726.7	14407.8	1158817.1
Transmission Link from hh to palo alto to Palo Alto Service Area	14295.5	14397.2	14397.2	14397.2	14397.2	12121.7	12121.7	12108.8	11741.0	14397.2	1157880.1
Transmission Link from hh to santa clara to Santa Clara Service Area	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from hh to sj muni n to SJ Muni North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sum	55705.9	55728.0	55728.0	55728.0	55728.0	46570.3	46570.3	46538.4	45796.3	55728.0	4484686.4
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission Li	Transmission Li	Transmission Li	Transmission L	Transmission L	Transmission L	Transmission L	Transmission Li	Transmission Li
Transmission Link from local stevens creek flood release to Tributary	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from local uvas flood release to Tributary Inflow 5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from release from anderson to cvp pl to Anderson PL	420.5	5729.9	60350.1	6986.9	7506.2	344.8	442.7	4730.9	7088.6	971.2	679208.6
Transmission Link from release from calero to cvp pl to Calero PL rele	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from release from pacheco to Tributary Inflow 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sum	420.5	5729.9	60350.1	6986.9	7506.2	344.8	442.7	4730.9	7088.6	971.2	679208.6
Streamflow (below node or reach listed) (All Rivers) (Acre-foot)	Streamflow (b	Streamflow (b	Streamflow (be	Streamflow (be	Streamflow (be	Streamflow (b	Streamflow (b	Streamflow (b	Streamflow (b	Streamflow (be	Streamflow (be
SWP 1 Supply 0 \ Headflow	61999.1	10999.8	96998.6	29999.6	29999.6	56999.2	21999.7	27999.6	23999.6	63999.1	4939927.4
cvp 0 source supply 0 \ Headflow	121128.4	69175.9	152497.8	94555.5	64999.0	100323.6	64999.0	75023.6	81706.6	108114.6	8991576.1
Demand Site Inflows and Outflows (Demand Site: NC Coyote Pond Recharge) (	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from IPR Coyote	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Inflow from Lower Coyote Creek	10233.1	1770.0	10461.1	10950.0	5260.7	303.6	782.0	4567.9	4705.1	10950.0	807188.0
Inflow from cvp 3 santa clara conduit	390.4	0.0	0.0	0.0	0.0	339.9	0.0	0.0	864.9	0.0	4901.4
Outflow to North County Santa Clara Sbb	-10623.5	-1770.0	-10461.1	-10950.0	-5260.7	-643.5	-782.0	-4567.9	-5570.0	-10950.0	-812089.3
Sum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Demand Site Inflows and Outflows (Demand Site: Ford Pond Recharge) (Acre-f	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from IPR Coyote	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Inflow from Lower Coyote Creek	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Outflow to North County Santa Clara Sbb	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Demand Site Inflows and Outflows (Demand Site: Los Gatos Ponds) (Acre-foot	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from IPR LG Ponds	0.0	19999.7	0.0	16602.5	19999.7	19999.7	19999.7	19999.7	19999.7	19999.7	1213516.4
Inflow from Los Gatos Creek	4757.3	3220.7	0.0	3153.1	3798.3	3776.8	2813.5	3504.1	3798.3	3798.3	229698.0
Inflow from SWP 3 central pipeline	0.0	0.0	0.0	0.0	0.0	0.0	0.0	120.8	0.0	0.0	120.8
Inflow from cvp 7 central pl	16843.6	0.0	0.0	0.0	0.0	21.5	0.0	116.1	0.0	0.0	19684.9

	1922	**1977**	**1983**	**1987**	**1988**	**1989**	**1990**	**1991**	**1992**	**2002**	**Sum**
Outflow to North County Santa Clara Sbb	-21600.9	-23220.4	0.0	-19755.6	-23798.0	-23798.0	-22813.2	-23740.7	-23798.0	-23798.0	-1463020.1
Sum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Demand Site Inflows and Outflows (Demand Site: Almaden and Guadalupe Po	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from Guadalupe Creek	6,371.30	385.6	0.00	2,706.40	1,644.20	3,113.80	2,701.40	5,176.90	6,079.70	6,259.10	378,891.10
Inflow from IPR Guadalupe	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inflow from SWP 4 almaden valley pipeline	126.80	227.3	0.00	1,406.70	176.20	0.00	0.00	0.00	0.00	667.30	15,678.20
Inflow from cvp 5 almaden valley pl	262.10	227.30	0.00	1,569.30	205.30	107.60	0.00	0.00	0.00	680.40	39,411.20
Outflow to North County Santa Clara Sbb	-6,760.20	-840.20	0.00	-5,682.40	-2,025.80	-3,221.50	-2,701.40	-5,176.90	-6,079.70	-7,606.90	-433,980.60
Sum	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demand Site Inflows and Outflows (Demand Site: Kooser) (Acre-foot)	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from IPR Guadalupe	0.00	0	0.00	0.00	0	0	0	0	0	0.00	0.00
Inflow from SWP 4 almaden valley pipeline	47.00	49.6	0.00	484.80	94.4	67.1	0	0	0	584.00	16,673.60
Inflow from cvp 5 almaden valley pl	245.8	49.6	0	484.8	94.4	78.8	0	292.8	432	584.00	45,288.90
Outflow to North County Santa Clara Sbb	-292.80	-99.2	0.00	-969.60	-188.8	-145.9	0	-292.8	-432	-1,168.00	-61,962.50
Sum	0.00	0	0.00	0.00	0	0	0	0	0	0.00	0.00
Demand Site Inflows and Outflows (Demand Site: Los Capitancillos Ponds) (Ac	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from Guadalupe Creek	2,141.90	23	2,716.20	1,149.70	597.9	1,132.30	982.30	1,365.50	1,681.70	1,982.40	168,639.80
Inflow from IPR Guadalupe	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inflow from SWP 4 almaden valley pipeline	46.10	82.7	0.00	600.90	64.1	0.00	0	0.00	0.00	339.30	12,420.20
Inflow from cvp 5 almaden valley pl	95.30	82.7	0.00	653.30	74.70	39.10	0.00	0.00	0.00	408.00	26,726.70
Outflow to North County Santa Clara Sbb	-2,283.30	-188.3	-2,716.20	-2,403.90	-736.60	-1,171.40	-982.30	-1,365.50	-1,681.70	-2,729.60	-207,786.80
Sum	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demand Site Inflows and Outflows (Demand Site: Overfelt Ponds) (Acre-foot)	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from IPR Penitencia	0	0	0.00	0	0	0	0	0	0	0	0.00
Inflow from Penitencia Creek	0	0	0.00	0.00	0	0	0	0	0	0	0.00
Inflow from SWP 2 SBA pipeline	450.7	157.1	1,460.00	1,460.00	475.8	1,074.70	78.4	449.6	661.9	1,460.00	103,488.40
Outflow to North County Santa Clara Sbb	-450.7	-157.1	-1,460.00	-1,460.00	-475.8	-1,074.70	-78.4	-449.6	-661.9	-1,460.00	-103,488.40
Sum	0	0	0.00	0.00	0	0.00	0	0	0	0.00	0.00
Demand Site Inflows and Outflows (Demand Site: Penitencia Ponds) (Acre-foo	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from IPR Penitencia	0	0	0.00	0	0	0	0	0	0	0	0.00
Inflow from Penitencia Creek	0	0	0.00	0.00	0.00	0	0	0	0	0	0.00
Inflow from SWP 2 SBA pipeline	766.20	267.00	2,482.00	2,482.00	808.90	1,827.10	133.3	764.3	1,125.20	2,482.00	175,930.30
Outflow to North County Santa Clara Sbb	-766.20	-267.00	-2,482.00	-2,482.00	-808.90	-1,827.10	-133.30	-764.30	-1,125.20	-2,482.00	-175,930.30
Sum	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission Li	Transmission Li	Transmission Li	Transmission L	Transmission L	Transmission L	Transmission L	Transmission Li	Transmission Li
Transmission Link from Uvas release to Llagas recharge to Church Pond	0	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transmission Link from anderson release to butterfield to Butterfield	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transmission Link from anderson release to madronne to Madrone Ponds	7,888.80	811.2	1,677.50	3,368.70	838.80	0	0	1,000.00	1,000.00	2,942.50	243,269.00
Transmission Link from lex pl 1 to Rinconanda WTP	0.00	0	0	0.00	0	0	0	0.00	0.00	0.00	0.00
Transmission Link from lex pl 10 to NC IWRP recharge	0	0	0	0	0	0	0	0	0	0	0

Strategy B03

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Transmission Link from lex pl 2 to San Tomas Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 3 to Wildcat Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 4 to Saratoga Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 5 to Rodeo Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 6 to Calabazas Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 7 to Regnart Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 8 to Mcclellan Pond recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 9 to Stevens Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local 2 coyote pond recharge to Coyote Pond Rec	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transmission Link from local 2 guad creek to Guadalupe creek	5,618.30	340	7,081.00	3,589.30	1,449.90	2,745.80	2,382.20	4,565.10	5,361.20	5,519.40	476,640.20
Transmission Link from local 2 lower coyote recharge to lower coyote r	1,460.00	409.9	1,394.80	1,460.00	1,092.00	429.50	574.70	856.00	1,092.00	1,460.00	115,327.50
Transmission Link from local 2 overfelt to Overfelt Ponds	0.00	0	0.00	0.00	0.00	0	0	0	0.00	0.00	0.00
Transmission Link from local 2 pen ponds to Penitencia Ponds	0	0	0.00	0	0	0	0	0	0	0	0.00
Transmission Link from local 2 upper coyote to NC Upper Coyote Recharg	171.7	43.1	0.00	146.9	134.9	45.9	64.3	111.3	134.9	171.7	10,139.40
Transmission Link from local Chesbro release to recharge to Church Pon	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transmission Link from local Uvas release to recharge to Uvas Recharge	10,117.80	1,787.30	3,381.80	6,791.40	4,728.70	9,556.80	6,995.30	8,713.50	10,117.80	5,932.10	594,866.30
Transmission Link from local alamitos creek to Alamitos Creek recharge	1,106.50	101.70	2,070.90	887.20	447.00	849.20	736.80	1,042.90	1,405.70	1,305.10	131,602.40
Transmission Link from local anderson 2 coyote ponds to NC Coyote Pond	10,233.10	1,770.00	10,461.10	10,950.00	5,260.70	303.60	782	4,567.90	4,705.10	10,950.00	807,188.00
Transmission Link from local anderson release to main ave ponds to Mai	2,122.80	321.90	451.40	906.50	336.70	0	0	479.40	436.60	791.80	68,738.10
Transmission Link from local anderson res to Church Pond and Llagas Re	0.00	0	0	0.00	0	0	0	0	0	0	0.00
Transmission Link from local anderson res to Lower Llagas Recharge	0.00	0	0.00	0	0	0	0	0	0.00	0.00	0.00
Transmission Link from local calabasas creek to Calabazas Creek Rechar	1,149.00	236	1,368.80	141	353	200	50	374.4	1,015.20	1,869.00	72,301.10
Transmission Link from local calero creek to Calero Creek recharge	724.00	43	871.80	462.50	186.8	353.80	307.00	588.30	689.00	711.30	61,220.60
Transmission Link from local guadalupe 1 to Los Capitancillos Ponds	2,141.90	23	2,716.20	1,149.70	597.9	1,132.30	982.30	1,365.50	1,681.70	1,982.40	168,639.80
Transmission Link from local guadaupe 2 to Almaden and Guadalupe Ponds	6,371.30	385.6	0.00	2,706.40	1,644.20	3,113.80	2,701.40	5,176.90	6,079.70	6,259.10	378,891.10
Transmission Link from local lg creek diversion to Los Gatos Ck rechar	0.00	1,795.80	5,579.20	5,840.00	4,682.90	2,546.10	1,134.50	2,192.60	5,382.70	5,840.00	438,581.50
Transmission Link from local lg pond diversion to Los Gatos Ponds	4,757.30	3,220.70	0.00	3,153.10	3,798.30	3,776.80	2,813.50	3,504.10	3,798.30	3,798.30	229,698.00
Transmission Link from local lower Llagas recharge to Lower Llagas Rec	2,980.30	294.60	2,415.60	2,462.80	375.70	491.50	1,466.60	4,340.00	6,435.90	3,967.90	332,749.20
Transmission Link from local penitencia creek to Penitencia Creek Rech	1,335.80	164	0.00	427	334	484	227	410.00	747.00	1,198.00	53,841.20
Transmission Link from local regnart creek to Regnart Creek Recharge	276.70	14	344.1	15	20	4	1	73.3	189.4	451.70	16,973.80
Transmission Link from local release 2 ford ponds to Ford Pond Recharg	0.00	0.00	0.00	0.00	0.00	0	0	0.00	0.00	0.00	0.00
Transmission Link from local release 2 upper coyote to Coyote Upper Re	15,284.40	1,227.60	11,511.70	15,768.70	3,089.80	514.3	0	6,570.90	7,372.40	15,768.70	1,096,923.00
Transmission Link from local rodeo creek to Rodeo Creek Recharge	67.60	2.00	126.00	2.00	3.00	0	0	16.00	50.00	178.70	5,041.90
Transmission Link from local ross creek recharge to Ross Creek Recharg	863.8	290	1,139.50	487	421	364	364	517	633	888	57,832.60
Transmission Link from local san tomoa creek to San Tomas Creek Rechar	691.4	188.5	773.50	299.1	271.5	170.3	233.9	311.8	388.5	771.9	48,764.70
Transmission Link from local saratoga div to NC IWRP recharge	0.00	0	0.00	0.00	0	0.00	0	0	0.00	0.00	0.00
Transmission Link from local saratogo creek to Saratoga Creek Recharge	2,683.40	648	3,373.00	1,133.00	593	1,203.20	981	958.2	1,846.00	3,512.20	184,877.00
Transmission Link from local silver creek to Silver Creek Recharge	722.40	85	697.40	715.00	331.00	93.00	262.00	58.00	103.00	730.00	53,038.70
Transmission Link from local stevens creek to Stevens Creek Recharge	2,561.20	599.6	3,487.00	3,650.00	2,484.30	1,437.40	1,362.20	2,691.50	3,631.60	3,650.00	273,241.70
Transmission Link from local thompson creek to Thompson Creek Recharge	750.70	47	1,041.10	617.00	362.00	52.00	178.00	32.00	109.00	927.00	54,107.10
Transmission Link from local wildcat creek to Wildcat Creek Recharge	443.50	122.50	502.80	194.40	176.50	110.70	152.10	202.70	252.50	484.10	30,501.80
Sum	82,523.60	14,972.00	62,466.10	67,323.90	34,013.50	29,978.10	24,751.60	50,719.20	64,658.20	82,060.80	6,004,995.40
demand_reduction_fctr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.10	-0.19	0.00	

Strategy B06

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Groundwater Storage (Acre-foot)	Groundwater	Groundwater	Groundwater S	Groundwater S	Groundwater S	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater Storage (Acre-foo	
Coyote Subbasin	19795.5	14060.3	22523.4	23025.6	16862.9	6855.1	0.0	566.8	1395.2	22231.2	
LlagasSubbasin	80063.0	124446.4	145573.7	137299.3	128398.4	114244.9	100372.7	96639.6	100283.5	144154.8	
North County Santa Clara Sbb	278073.4	286111.6	336293.3	304236.4	283273.7	267901.8	200884.3	164011.1	155611.3	333017.4	
Sum	377931.9	424618.3	504390.4	464561.2	428534.9	389001.8	301257.0	261217.5	257290.1	499403.3	
Reservoir Storage Volume (Acre-foot)	Reservoir Stor	Reservoir Stor	Reservoir Stora	Reservoir Stora	Reservoir Stora	Reservoir Stor	Reservoir Stor	Reservoir Stor	Reservoir Stor	Reservoir Storage Volume (Acr	
Almaden Reservoir	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	351.0	
Anderson Reservoir	22000.0	22000.0	69864.0	38030.7	21939.3	21954.3	21550.4	22000.0	22000.0	51858.4	
Calero Reservoir	1000.0	693.5	5600.0	1000.0	932.6	1000.0	1000.0	993.9	2233.3	4457.5	
Chesbro Reservoir	500.0	500.0	4586.0	500.0	443.7	451.7	500.0	500.0	1293.4	4586.0	
Coyote Reservoir	1000.0	1000.0	5200.0	5200.0	997.2	993.7	910.4	1000.0	1000.0	5200.0	
Guadalupe Reservoir	200.0	168.9	1188.0	200.0	200.0	200.0	200.0	200.0	200.0	1188.0	
Lexington Reservoir	1475.3	243.6	7449.9	1291.9	428.0	184.0	115.1	789.5	1504.7	5318.9	
Pacheco Reservoir	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	
Stevens Creek Reservoir	31.0	181.5	2368.0	583.6	31.0	31.0	31.0	31.0	1609.5	2368.0	
Uvas Reservoir	2703.9	2824.1	5987.7	1486.9	1104.1	557.6	500.0	3963.6	6258.0	6258.0	
cvp caryover	0.0	0.0	0.0	32448.7	0.0	0.0	0.0	0.0	0.0	49109.7	
cvp overflow not used	0.0	328389.6	585015.4	585015.4	585015.4	585015.4	585015.4	585015.4	585015.4	680643.9	
semitropic reservoir	242493.3	346171.3	350000.0	350000.0	341656.9	325835.5	290099.0	256840.5	228407.2	349993.3	
swp caryyover	0.0	0.0	0.0	21632.5	0.0	0.0	0.0	0.0	0.0	33226.4	
swp overflow not used	0.0	127122.4	288135.1	288135.1	288135.1	288135.1	288135.1	288135.1	288135.1	292931.7	
Sum	276603.5	834495.0	1330594.1	1330724.8	1246083.4	1229558.3	1193256.5	1164669.0	1142856.5	1492490.8	
Groundwater Natural Recharge (Acre-foot)	Groundwater	Groundwater	Groundwater N	Groundwater N	Groundwater N	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater N	Groundwater N
Coyote Subbasin	2535.0	1326.9	5335.0	1838.8	1544.9	1101.9	1457.8	2541.2	3273.6	2141.8	183393.1
LlagasSubbasin	24664.6	19659.9	33521.4	20971.2	20239.6	19330.3	21198.0	22272.2	21962.7	22365.9	1888278.1
North County Santa Clara Sbb	39177.8	26853.8	56312.9	30423.5	26962.8	27176.6	25998.0	24763.5	29247.2	34205.1	2881697.9
Sum	66377.4	47840.6	95169.3	53233.5	48747.3	47608.8	48653.8	49576.9	54483.5	58712.8	4953369.1
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission Li	Transmission Li	Transmission Li	Transmission L	Transmission L	Transmission L	Transmission L	Transmission Li	Transmission Li
Transmission Link from lake elsman to sjw west to SJ Water Company	12613.8	1362.0	14943.8	3997.9	3455.9	6503.9	3720.9	6431.9	3455.9	7405.9	815457.0
Transmission Link from stanford water to Stanford Moffett Field Ames	823.0	64.0	692.0	187.0	160.0	303.0	174.0	296.0	160.0	681.0	51733.2
Sum	13436.8	1426.0	15635.8	4184.9	3615.9	6806.9	3894.9	6727.9	3615.9	8086.9	867190.3
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission Li	Transmission Li	Transmission Li	Transmission L	Transmission L	Transmission L	Transmission L	Transmission Li	Transmission Li
Transmission Link from SCRWA to Morgan Hill to Morgan Hill Service Are	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from deliver recycled to gilroy to Gilroy Service Ar	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	131196.6
Transmission Link from hecker pass recycled to Gilroy Service Area	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from morgan hill recycled to Morgan Hill Service Are	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from recycle pa to palo alto to Palo Alto Service Ar	1055.8	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	69136.2
Transmission Link from recycle sv to sunnyvale to Sunnyvale Service Ar	1900.0	2400.0	2400.0	2400.0	2400.0	2400.0	2400.0	2400.0	2400.0	2400.0	196297.1
Transmission Link from recycled 1 to Llagas Ag	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	98400.0
Transmission Link from recycled SB to SJWC to SJ Water Company	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	249415.8
Transmission Link from recycled SB to santa clara to Santa Clara Servi	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	383760.0
Transmission Link from recycled pa to mountain view to Mountain View S	994.2	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	98961.3

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Transmission Link from recycled sb to milpitas to Milpitas Service Are	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	172692.0
Transmission Link from recycled sb to sj muni north to SJ Muni North	9500.4	9839.7	9839.7	9839.7	9839.7	9839.7	9839.7	9839.7	9839.7	9839.7	806516.1
Transmission Link from recycled sb to sjMuni edenvale to SJ Muni servi	4071.6	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	306387.9
Sum	30149.6	30649.5	30649.5	30649.5	30649.5	30649.5	30649.5	30649.5	30649.5	30649.5	2512763.1
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission Li	Transmission Li	Transmission Li	Transmission L	Transmission L	Transmission L	Transmission L	Transmission Li	Transmission Li
Transmission Link from hh to PHills to Purisma Hills Service Area	1828.0	1828.0	1828.0	1828.0	1828.0	1516.0	1516.0	1516.0	1516.0	1828.0	147200.7
Transmission Link from hh to Sunnyvale to Sunnyvale Service Area	13249.0	13249.0	13249.0	13249.0	13249.0	10988.0	10988.0	10988.0	10988.0	13249.0	1066882.9
Transmission Link from hh to milpitas service area to Milpitas Service	8451.0	8451.0	8451.0	8451.0	8451.0	7008.8	7008.8	7008.8	7008.8	8451.0	680521.4
Transmission Link from hh to moffett ames to Stanford Moffett Field Am	3395.0	3395.0	3395.0	3395.0	3395.0	2815.6	2815.6	2815.6	2815.6	3395.0	273384.2
Transmission Link from hh to mountain view to Mountain View Service Ar	14487.4	14407.8	14407.8	14407.8	14407.8	12120.0	12120.0	12120.0	12120.0	14407.8	1161236.1
Transmission Link from hh to palo alto to Palo Alto Service Area	14295.5	14397.2	14397.2	14397.2	14397.2	12121.7	12121.7	12121.7	12121.7	14397.2	1160281.0
Transmission Link from hh to santa clara to Santa Clara Service Area	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from hh to sj muni n to SJ Muni North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sum	55705.9	55728.0	55728.0	55728.0	55728.0	46570.3	46570.3	46570.3	46570.3	55728.0	4489506.2
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission Li	Transmission Li	Transmission Li	Transmission L	Transmission L	Transmission L	Transmission L	Transmission Li	Transmission Li
Transmission Link from local stevens creek flood release to Tributary	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from local uvas flood release to Tributary Inflow 5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from release from anderson to cvp pl to Anderson PL	420.5	4542.7	59949.9	2174.2	3652.0	344.8	442.7	3500.0	4706.1	971.2	667470.2
Transmission Link from release from calero to cvp pl to Calero PL rele	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from release from pacheco to Tributary Inflow 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sum	420.5	4542.7	59949.9	2174.2	3652.0	344.8	442.7	3500.0	4706.1	971.2	667470.2
Streamflow (below node or reach listed) (All Rivers) (Acre-foot)	Streamflow (b	Streamflow (b	Streamflow (be	Streamflow (be	Streamflow (be	Streamflow (b	Streamflow (b	Streamflow (b	Streamflow (b	Streamflow (be	Streamflow (be
SWP 1 Supply 0 \ Headflow	61999.1	10999.8	96998.6	29999.6	29999.6	56999.2	21999.7	27999.6	23999.6	63999.1	4939927.4
cvp 0 source supply 0 \ Headflow	121128.4	69175.9	152497.8	94555.5	64999.0	100323.6	64999.0	75023.6	81706.6	108114.6	8991576.1
Demand Site Inflows and Outflows (Demand Site: NC Coyote Pond Recharge) (	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from IPR Coyote	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Inflow from Lower Coyote Creek	10233.1	1801.9	9796.1	10950.0	7097.7	303.6	782.0	4567.9	5208.3	10950.0	811942.7
Inflow from cvp 3 santa clara conduit	390.4	2745.0	0.0	0.0	930.0	380.0	0.0	0.0	923.4	0.0	8883.7
Outflow to North County Santa Clara Sbb	-10623.5	-4546.9	-9796.1	-10950.0	-8027.7	-683.6	-782.0	-4567.9	-6131.8	-10950.0	-820826.4
Sum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Demand Site Inflows and Outflows (Demand Site: Ford Pond Recharge) (Acre-f	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from IPR Coyote	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Inflow from Lower Coyote Creek	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Outflow to North County Santa Clara Sbb	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Demand Site Inflows and Outflows (Demand Site: Los Gatos Ponds) (Acre-foot	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from IPR LG Ponds	0.0	19999.7	0.0	16602.5	19999.7	19999.7	19999.7	19999.7	19999.7	19999.7	1094997.6
Inflow from Los Gatos Creek	4757.3	0.0	0.0	280.2	0.0	0.0	0.0	322.6	291.4	322.6	26741.6
Inflow from SWP 3 central pipeline	0.0	0.0	0.0	0.0	268.3	0.0	1486.0	312.4	0.0	0.0	2195.2
Inflow from cvp 7 central pl	16843.6	3798.3	0.0	2872.9	3530.0	3798.3	1667.1	3163.3	3506.9	3475.7	198639.2

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Outflow to North County Santa Clara Sbb	-21600.9	-23798.0	0.0	-19755.6	-23798.0	-23798.0	-23152.8	-23798.0	-23798.0	-23798.0	-1322573.6
Sum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Demand Site Inflows and Outflows (Demand Site: Almaden and Guadalupe Po	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from Guadalupe Creek	6,371.30	385.6	0.00	2,978.10	1,644.20	3,113.80	2,701.40	5,176.90	6,079.70	6,259.10	336,794.00
Inflow from IPR Guadalupe	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inflow from SWP 4 almaden valley pipeline	126.80	1,557.60	0.00	1,330.40	1,082.70	743.80	0.00	245.70	0.00	667.30	23,421.80
Inflow from cvp 5 almaden valley pl	262.10	4,656.90	0.00	1,373.90	3,721.90	609.20	0.00	0.00	332.70	680.40	46,217.30
Outflow to North County Santa Clara Sbb	-6,760.20	-6,600.00	0.00	-5,682.40	-6,448.80	-4,466.80	-2,701.40	-5,422.50	-6,412.40	-7,606.90	-406,433.20
Sum	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demand Site Inflows and Outflows (Demand Site: Kooser) (Acre-foot)	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from IPR Guadalupe	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inflow from SWP 4 almaden valley pipeline	47.00	361.2	0.00	484.80	292.9	399.3	134.4	69	0	584.00	22,073.20
Inflow from cvp 5 almaden valley pl	245.8	1,024.00	0	484.8	880	274.2	0	318.6	989.1	584.00	40,014.00
Outflow to North County Santa Clara Sbb	-292.80	-1,385.20	0.00	-969.60	-1,172.90	-673.40	-134.40	-387.70	-989.10	-1,168.00	-62,087.20
Sum	0.00	0	0.00	0.00	0	0	0	0	0	0.00	0.00
Demand Site Inflows and Outflows (Demand Site: Los Capitancillos Ponds) (Ac	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from Guadalupe Creek	2,141.90	23	2,538.90	1,149.70	597.9	1,132.30	982.30	1,365.50	1,681.70	1,982.40	170,647.80
Inflow from IPR Guadalupe	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inflow from SWP 4 almaden valley pipeline	46.10	590.9	0.00	600.90	393.7	270.50	0	89.30	0.00	339.30	15,693.30
Inflow from cvp 5 almaden valley pl	95.30	1,706.70	0.00	653.30	1,353.40	221.50	0.00	35.10	231.20	408.00	27,514.90
Outflow to North County Santa Clara Sbb	-2,283.30	-2,320.60	-2,538.90	-2,403.90	-2,345.00	-1,624.30	-982.30	-1,489.90	-1,912.80	-2,729.60	-213,855.90
Sum	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demand Site Inflows and Outflows (Demand Site: Overfelt Ponds) (Acre-foot)	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from IPR Penitencia	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inflow from Penitencia Creek	0	0	0.00	0.00	0	0	0	0	0	0	0.00
Inflow from SWP 2 SBA pipeline	450.7	1,460.00	1,460.00	1,460.00	1,402.60	1,451.10	385.9	1,195.90	1,407.90	1,460.00	114,420.80
Outflow to North County Santa Clara Sbb	-450.7	-1,460.00	-1,460.00	-1,460.00	-1,402.60	-1,451.10	-385.90	-1,195.90	-1,407.90	-1,460.00	-114,420.80
Sum	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Penitencia Ponds) (Acre-foo	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from IPR Penitencia	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inflow from Penitencia Creek	0	0	0.00	0.00	0.00	0	0	0	0	0	0.00
Inflow from SWP 2 SBA pipeline	766.20	2,482.00	2,482.00	2,482.00	2,384.40	2,466.90	656.1	2,033.00	2,393.40	2,482.00	194,515.40
Outflow to North County Santa Clara Sbb	-766.20	-2,482.00	-2,482.00	-2,482.00	-2,384.40	-2,466.90	-656.10	-2,033.00	-2,393.40	-2,482.00	-194,515.40
Sum	0	0	0	0	0	0	0	0	0	0	0
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission Li	Transmission Li	Transmission Li	Transmission L	Transmission L	Transmission L	Transmission L	Transmission Li	Transmission Li
Transmission Link from Uvas release to Llagas recharge to Church Pond	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from anderson release to butterfield to Butterfield	0.00	0	0.00	0.00	0.00	0	0	0.00	0.00	0.00	0.00
Transmission Link from anderson release to madronne to Madrone Ponds	7,888.80	811.2	1,677.50	3,368.70	2,103.80	0	0	1,677.50	1,799.90	3,368.80	227,903.30
Transmission Link from lex pl 1 to Rinconanda WTP	0	2,959.60	43,586.50	10,995.60	2,864.00	4,251.10	2,994.10	5,890.50	12,252.90	11,164.80	1,453,943.80
Transmission Link from lex pl 10 to NC IWRP recharge	0	0	136.4	0	0	0	0	0	0	249.3	6,842.10

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Transmission Link from lex pl 2 to San Tomas Creek Recharge	0	0	115.4	0	0	0	0	0	0	54.2	1,457.90
Transmission Link from lex pl 3 to Wildcat Creek Recharge	0	0	75	0	0	0	0	0	0	35.2	1,024.60
Transmission Link from lex pl 4 to Saratoga Creek Recharge	0	0	739.8	0	0	0	0	0	0	353.9	11,158.10
Transmission Link from lex pl 5 to Rodeo Creek Recharge	0	0	459.9	0	0	0	0	68.9	47.7	80.9	11,338.10
Transmission Link from lex pl 6 to Calabazas Creek Recharge	0	0	586	0	0	0	0	0	0	106.4	9,582.90
Transmission Link from lex pl 7 to Regnart Creek Recharge	0	0	197.5	0	0	0	0	0	0	49.3	3,855.10
Transmission Link from lex pl 8 to Mcclellan Pond recharge	0	0	1,017.60	0	0	0	0	148.8	134.4	148.8	26,355.20
Transmission Link from lex pl 9 to Stevens Creek Recharge	0	0	384.6	0	0	0	0	0	0	0	1,072.00
Transmission Link from local 2 coyote pond recharge to Coyote Pond Rec	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transmission Link from local 2 guad creek to Guadalupe creek	5,618.30	340	7,081.00	3,829.00	1,449.90	2,745.80	2,382.20	4,565.10	5,361.20	5,519.40	481,576.40
Transmission Link from local 2 lower coyote recharge to lower coyote r	1,460.00	511.6	1,306.10	1,460.00	1,135.30	429.5	574.7	856	1,092.00	1,460.00	115,130.30
Transmission Link from local 2 overfelt to Overfelt Ponds	0	0	0.00	0	0	0	0	0	0	0	0.00
Transmission Link from local 2 pen ponds to Penitencia Ponds	0	0	0.00	0	0	0	0	0	0	0	0.00
Transmission Link from local 2 upper coyote to NC Upper Coyote Recharg	171.7	54.7	0	146.9	139.2	45.9	64.3	111.3	134.9	171.7	9,109.80
Transmission Link from local Chesbro release to recharge to Church Pon	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transmission Link from local Uvas release to recharge to Uvas Recharge	10,117.80	1,787.30	3,381.80	6,791.40	4,724.80	9,556.80	6,995.30	8,713.50	10,117.80	6,791.40	575,403.10
Transmission Link from local alamitos creek to Alamitos Creek recharge	1,106.50	101.70	1,937.90	887.20	447.00	849.20	736.80	1,042.90	1,405.70	1,305.10	132,734.20
Transmission Link from local anderson 2 coyote ponds to NC Coyote Pond	10,233.10	1,801.90	9,796.10	10,950.00	7,097.70	303.6	782	4,567.90	5,208.30	10,950.00	811,942.70
Transmission Link from local anderson release to main ave ponds to Mai	2,122.80	218.3	451.4	906.50	566.1	0	0	451.4	351.1	906.50	60,460.20
Transmission Link from local anderson res to Church Pond and Llagas Re	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local anderson res to Lower Llagas Recharge	0.00	0	0.00	0	0	0	0	0	0.00	0.00	0.00
Transmission Link from local calabasas creek to Calabazas Creek Rechar	1,149.00	236	1,262.80	141	353	200	50	374.4	1,015.20	1,869.00	71,925.40
Transmission Link from local calero creek to Calero Creek recharge	724.00	43	816.30	493.40	186.8	353.80	307.00	588.30	689.00	711.30	61,616.60
Transmission Link from local guadalupe 1 to Los Capitancillos Ponds	2,141.90	23	2,538.90	1,149.70	597.9	1,132.30	982.30	1,365.50	1,681.70	1,982.40	170,647.80
Transmission Link from local guadaupe 2 to Almaden and Guadalupe Ponds	6,371.30	385.6	0.00	2,978.10	1,644.20	3,113.80	2,701.40	5,176.90	6,079.70	6,259.10	336,794.00
Transmission Link from local lg creek diversion to Los Gatos Ck rechar	0.00	0.00	2,776.60	0.00	0.00	0.00	0.00	496.00	448.00	496.00	86,135.20
Transmission Link from local lg pond diversion to Los Gatos Ponds	4,757.30	0.00	0.00	280.20	0.00	0.00	0.00	322.60	291.40	322.60	26,741.60
Transmission Link from local lower Llagas recharge to Lower Llagas Rec	2,980.30	294.6	2,415.60	2,473.20	375.7	491.5	1,466.60	4,340.00	6,435.90	4,023.90	321,604.50
Transmission Link from local penitencia creek to Penitencia Creek Rech	1,335.80	164	0	427	334	484	227	410	747	1,198.00	47,162.20
Transmission Link from local regnart creek to Regnart Creek Recharge	276.7	14	318.1	15	20	4	1	73.3	189.4	451.7	16,889.60
Transmission Link from local release 2 ford ponds to Ford Pond Recharg	0.00	0.00	0.00	0.00	0.00	0	0	0.00	0.00	0.00	0.00
Transmission Link from local release 2 upper coyote to Coyote Upper Re	15,284.40	2,341.20	10,228.70	15,768.70	8,092.90	514.3	0	7,079.80	8,430.80	14,168.90	1,110,357.10
Transmission Link from local rodeo creek to Rodeo Creek Recharge	67.6	2	126.00	2	3	0	0	16	50	178.7	5,041.90
Transmission Link from local ross creek recharge to Ross Creek Recharg	863.8	290	1,053.50	487	421	364	364	517	633	888	57,524.90
Transmission Link from local san tomoa creek to San Tomas Creek Rechar	691.4	188.5	707	299.1	271.5	170.3	233.9	311.8	388.5	771.9	48,508.90
Transmission Link from local saratoga div to NC IWRP recharge	0.00	267.8	2,365.50	468.20	245	519.00	405.4	524	1,050.20	2,004.90	104,584.70
Transmission Link from local saratogo creek to Saratoga Creek Recharge	2,683.40	380.2	2,812.80	664.80	348	737.00	575.6	744.1	1,491.30	2,847.00	149,751.30
Transmission Link from local silver creek to Silver Creek Recharge	722.40	85	653.10	715.00	331.00	93.00	262.00	58.00	103.00	730.00	52,856.90
Transmission Link from local stevens creek to Stevens Creek Recharge	2,561.20	599.6	3,265.40	3,650.00	2,484.30	1,437.40	1,362.20	2,691.50	3,631.60	3,650.00	272,332.70
Transmission Link from local thompson creek to Thompson Creek Recharge	750.7	47	974.60	617	362	52	178	32	109	927	53,851.20
Transmission Link from local wildcat creek to Wildcat Creek Recharge	443.50	122.50	459.50	194.40	176.50	110.70	152.10	202.70	252.50	484.10	30,335.50
Sum	82,523.60	14,070.20	105,704.70	70,159.10	36,774.70	27,959.10	23,797.70	53,417.60	71,623.30	86,680.10	6,965,552.00
demand_reduction_fctr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.05	0.00	

Strategy B07

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Groundwater Storage (Acre-foot)	Groundwater	Groundwater	Groundwater S	Groundwater S	Groundwater S	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater Storage (Acre-foo	
Coyote Subbasin	19795.5	9644.0	22482.9	22985.1	12113.9	1375.0	0.0	473.7	1182.2	22717.2	
LlagasSubbasin	80063.0	112536.6	146002.4	137360.8	121833.8	107680.3	93808.1	91019.3	93879.5	143237.3	
North County Santa Clara Sbb	278073.4	223395.3	334094.5	297352.2	242587.4	209624.8	122603.3	103977.8	105640.3	327206.0	
Sum	377931.9	345575.9	502579.8	457698.1	376535.1	318680.1	216411.4	195470.8	200702.0	493160.5	
Reservoir Storage Volume (Acre-foot)	Reservoir Stor	Reservoir Stor	Reservoir Stora	Reservoir Stora	Reservoir Stora	Reservoir Stor	Reservoir Stor	Reservoir Stor	Reservoir Stor	Reservoir Storage Volume (Acr	
Almaden Reservoir	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	351.0	
Anderson Reservoir	22000.0	22000.0	69864.0	38018.3	21939.3	21954.3	21550.4	22000.0	22000.0	51423.3	
Calero Reservoir	1000.0	693.5	5600.0	1000.0	932.6	1000.0	1000.0	993.9	2233.3	4457.5	
Chesbro Reservoir	500.0	500.0	4586.0	500.0	443.7	451.7	500.0	500.0	1293.4	4586.0	
Coyote Reservoir	1000.0	1000.0	5200.0	5200.0	997.2	993.7	910.4	1000.0	1000.0	5200.0	
Guadalupe Reservoir	200.0	168.9	1188.0	200.0	200.0	200.0	200.0	200.0	200.0	1188.0	
Lexington Reservoir	1475.3	676.5	16000.0	4475.5	1327.2	551.5	218.9	1825.8	3996.2	9395.4	
Pacheco Reservoir	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	
Stevens Creek Reservoir	31.0	181.5	2368.0	583.6	31.0	31.0	31.0	31.0	1609.5	2368.0	
Uvas Reservoir	2703.9	2824.1	5987.7	1486.9	1104.1	557.6	500.0	3963.6	6258.0	6258.0	
cvp caryover	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	868.1	
cvp overflow not used	0.0	20912.7	157896.5	157896.5	157896.5	157896.5	157896.5	157896.5	157896.5	167498.4	
semitropic reservoir	242493.3	71695.9	126465.1	127492.6	92460.4	75434.3	39699.2	5080.7	0.0	110174.3	
swp caryyover	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1027.4	
swp overflow not used	0.0	0.0	45573.3	45573.3	45573.3	45573.3	45573.3	45573.3	45573.3	45573.3	
Sum	276603.5	125853.1	445928.5	387626.7	328105.4	309843.9	273279.8	244264.8	247260.2	415368.7	
Groundwater Natural Recharge (Acre-foot)	Groundwater	Groundwater	Groundwater N	Groundwater N	Groundwater N	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater N	Groundwater N
Coyote Subbasin	2535.0	1326.9	5335.0	1838.8	1544.9	1101.9	1457.8	2541.2	3273.6	2141.8	183393.1
LlagasSubbasin	24664.6	19659.9	33521.4	20971.2	20239.6	19330.3	21198.0	22272.2	21962.7	22365.9	1888278.1
North County Santa Clara Sbb	39177.8	26853.8	56312.9	30423.5	26962.8	27176.6	25998.0	24763.5	29247.2	34205.1	2881697.9
Sum	66377.4	47840.6	95169.3	53233.5	48747.3	47608.8	48653.8	49576.9	54483.5	58712.8	4953369.1
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission Li	Transmission Li	Transmission Li	Transmission L	Transmission L	Transmission L	Transmission L	Transmission Li	Transmission Li
Transmission Link from lake elsman to sjw west to SJ Water Company	12613.8	1362.0	14943.8	3997.9	3455.9	6503.9	3720.9	6431.9	3455.9	7405.9	815457.0
Transmission Link from stanford water to Stanford Moffett Field Ames	823.0	64.0	692.0	187.0	160.0	303.0	174.0	296.0	160.0	681.0	51733.2
Sum	13436.8	1426.0	15635.8	4184.9	3615.9	6806.9	3894.9	6727.9	3615.9	8086.9	867190.3
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission Li	Transmission Li	Transmission Li	Transmission L	Transmission L	Transmission L	Transmission L	Transmission Li	Transmission Li
Transmission Link from SCRWA to Morgan Hill to Morgan Hill Service Are	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from deliver recycled to gilroy to Gilroy Service Ar	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	131196.6
Transmission Link from hecker pass recycled to Gilroy Service Area	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from morgan hill recycled to Morgan Hill Service Are	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from recycle pa to palo alto to Palo Alto Service Ar	1055.7	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	69136.2
Transmission Link from recycle sv to sunnyvale to Sunnyvale Service Ar	1900.0	2400.0	2400.0	2400.0	2400.0	2400.0	2400.0	2400.0	2400.0	2400.0	196297.1
Transmission Link from recycled 1 to Llagas Ag	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	98400.0
Transmission Link from recycled SB to SJWC to SJ Water Company	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	249415.8
Transmission Link from recycled SB to santa clara to Santa Clara Servi	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	383760.0
Transmission Link from recycled pa to mountain view to Mountain View S	994.2	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	98961.3

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Transmission Link from recycled sb to milpitas to Milpitas Service Are	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	172692.0
Transmission Link from recycled sb to sj muni north to SJ Muni North	9500.4	9839.7	9839.7	9839.7	9839.7	9839.7	9839.7	9839.7	9839.7	9839.7	806516.1
Transmission Link from recycled sb to sjMuni edenvale to SJ Muni servi	4071.6	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	306387.9
Sum	30149.6	30649.5	30649.5	30649.5	30649.5	30649.5	30649.5	30649.5	30649.5	30649.5	2512763.1
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission Li	Transmission Li	Transmission Li	Transmission L	Transmission L	Transmission L	Transmission L	Transmission Li	Transmission Li
Transmission Link from hh to PHills to Purisma Hills Service Area	1828.0	1828.0	1828.0	1828.0	1828.0	1516.0	1516.0	1516.0	1516.0	1828.0	147200.7
Transmission Link from hh to Sunnyvale to Sunnyvale Service Area	13249.0	13249.0	13249.0	13249.0	13249.0	10988.0	10988.0	10988.0	10988.0	13249.0	1066882.9
Transmission Link from hh to milpitas service area to Milpitas Service	8451.0	8451.0	8451.0	8451.0	8451.0	7008.8	7008.8	7008.8	7008.8	8451.0	680521.4
Transmission Link from hh to moffett ames to Stanford Moffett Field Am	3395.0	3395.0	3395.0	3395.0	3395.0	2815.6	2815.6	2815.6	2815.6	3395.0	273384.2
Transmission Link from hh to mountain view to Mountain View Service Ar	14487.4	14407.8	14407.8	14407.8	14407.8	12120.0	12120.0	12101.1	11726.7	14407.8	1156700.1
Transmission Link from hh to palo alto to Palo Alto Service Area	14295.5	14397.2	14397.2	14397.2	14397.2	12121.7	12121.7	12108.8	11741.0	14397.2	1155748.6
Transmission Link from hh to santa clara to Santa Clara Service Area	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from hh to sj muni n to SJ Muni North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sum	55705.9	55728.0	55728.0	55728.0	55728.0	46570.3	46570.3	46538.4	45796.3	55728.0	4480437.9
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission Li	Transmission Li	Transmission Li	Transmission L	Transmission L	Transmission L	Transmission L	Transmission Li	Transmission Li
Transmission Link from local stevens creek flood release to Tributary	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from local uvas flood release to Tributary Inflow 5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from release from anderson to cvp pl to Anderson PL	420.5	5019.4	59949.9	2174.2	10488.9	344.8	442.7	4730.9	6946.6	971.2	670443.6
Transmission Link from release from calero to cvp pl to Calero PL rele	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from release from pacheco to Tributary Inflow 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sum	420.5	5019.4	59949.9	2174.2	10488.9	344.8	442.7	4730.9	6946.6	971.2	670443.6
Streamflow (below node or reach listed) (All Rivers) (Acre-foot)	Streamflow (b	Streamflow (b	Streamflow (be	Streamflow (be	Streamflow (be	Streamflow (b	Streamflow (b	Streamflow (b	Streamflow (b	Streamflow (be	Streamflow (be
SWP 1 Supply 0 \ Headflow	61999.1	10999.8	96998.6	29999.6	29999.6	56999.2	21999.7	27999.6	23999.6	63999.1	4939927.4
cvp 0 source supply 0 \ Headflow	121128.4	69175.9	152497.8	94555.5	64999.0	100323.6	64999.0	75023.6	81706.6	108114.6	8991576.1
Demand Site Inflows and Outflows (Demand Site: NC Coyote Pond Recharge) (	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from IPR Coyote	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Inflow from Lower Coyote Creek	10233.1	1801.9	10243.2	10950.0	5422.2	303.6	782.0	4567.9	4705.1	10950.0	804684.4
Inflow from cvp 3 santa clara conduit	390.4	0.0	0.0	0.0	0.0	453.7	0.0	0.0	669.9	0.0	5430.3
Outflow to North County Santa Clara Sbb	-10623.5	-1801.9	-10243.2	-10950.0	-5422.2	-757.3	-782.0	-4567.9	-5375.1	-10950.0	-810114.7
Sum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Demand Site Inflows and Outflows (Demand Site: Ford Pond Recharge) (Acre-f	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from IPR Coyote	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Inflow from Lower Coyote Creek	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Outflow to North County Santa Clara Sbb	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Demand Site Inflows and Outflows (Demand Site: Los Gatos Ponds) (Acre-foot	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from IPR LG Ponds	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Inflow from Los Gatos Creek	4757.3	3723.7	0.0	10590.0	4496.4	4280.9	3207.6	5338.9	9579.6	11023.0	916413.5
Inflow from SWP 3 central pipeline	0.0	808.1	0.0	0.0	3498.1	0.0	3723.2	1084.9	0.0	4758.5	76903.0
Inflow from cvp 7 central pl	16843.6	2886.1	0.0	1309.0	3455.5	7618.1	1915.4	5475.2	954.0	6013.6	288300.0

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Outflow to North County Santa Clara Sbb	-21600.9	-7417.8	0.0	-11899.0	-11450.0	-11899.0	-8846.3	-11899.0	-10533.6	-21795.2	-1281616.4
Sum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Demand Site Inflows and Outflows (Demand Site: Almaden and Guadalupe Po	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from Guadalupe Creek	6,371.30	385.6	0.00	3,563.20	1,644.20	3,113.80	2,701.40	5,176.90	6,079.70	6,259.10	395,901.80
Inflow from IPR Guadalupe	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inflow from SWP 4 almaden valley pipeline	126.80	1,087.60	0.00	894.70	185.30	727.00	0.00	139.30	0.00	667.30	15,956.10
Inflow from cvp 5 almaden valley pl	262.10	260.90	0.00	2,793.00	982.90	107.40	0.00	0.00	0.00	680.40	41,684.20
Outflow to North County Santa Clara Sbb	-6,760.20	-1,734.10	0.00	-7,250.90	-2,812.40	-3,948.30	-2,701.40	-5,316.20	-6,079.70	-7,606.90	-453,542.10
Sum	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demand Site Inflows and Outflows (Demand Site: Kooser) (Acre-foot)	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from IPR Guadalupe	0.00	0	0.00	0.00	0	0	0	0	0	0.00	0.00
Inflow from SWP 4 almaden valley pipeline	47.00	243.2	0.00	436.80	51.3	348.8	134.4	39.1	0	584.00	17,754.90
Inflow from cvp 5 almaden valley pl	245.8	57	0	878.4	444.6	107.4	0	292.8	542.5	584.00	47,338.90
Outflow to North County Santa Clara Sbb	-292.80	-300.2	0.00	-1,315.20	-495.9	-456.1	-134.4	-331.9	-542.5	-1,168.00	-65,093.70
Sum	0.00	0	0.00	0.00	0	0	0	0	0	0.00	0.00
Demand Site Inflows and Outflows (Demand Site: Los Capitancillos Ponds) (Ac	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from Guadalupe Creek	2,141.90	23	2,658.10	1,111.40	597.9	1,132.30	982.30	1,365.50	1,681.70	1,982.40	167,864.50
Inflow from IPR Guadalupe	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inflow from SWP 4 almaden valley pipeline	46.10	405.3	0.00	412.50	67.4	264.40	0	50.60	0.00	339.30	12,097.70
Inflow from cvp 5 almaden valley pl	95.30	95	0.00	1,112.80	357.40	39.00	0.00	0.00	0.00	408.00	26,287.90
Outflow to North County Santa Clara Sbb	-2,283.30	-523.3	-2,658.10	-2,636.70	-1,022.70	-1,435.70	-982.30	-1,416.10	-1,681.70	-2,729.60	-206,250.10
Sum	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demand Site Inflows and Outflows (Demand Site: Overfelt Ponds) (Acre-foot)	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from IPR Penitencia	0	0	0.00	0	0	0	0	0	0	0	0.00
Inflow from Penitencia Creek	0	0	0.00	0.00	0	0	0	0	0	0	0.00
Inflow from SWP 2 SBA pipeline	450.7	622.9	1,460.00	1,460.00	808.00	1,421.70	218.3	1,038.90	591.9	1,460.00	102,803.20
Outflow to North County Santa Clara Sbb	-450.7	-622.9	-1,460.00	-1,460.00	-808.00	-1,421.70	-218.3	-1,038.90	-591.9	-1,460.00	-102,803.20
Sum	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Penitencia Ponds) (Acre-foo	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from IPR Penitencia	0	0	0.00	0	0	0	0	0	0	0	0.00
Inflow from Penitencia Creek	0	0	0.00	0.00	0.00	0	0	0	0	0	0.00
Inflow from SWP 2 SBA pipeline	766.20	1,058.90	2,482.00	2,482.00	1,373.50	2,416.80	371.1	1,766.10	1,006.10	2,482.00	174,765.50
Outflow to North County Santa Clara Sbb	-766.20	-1,058.90	-2,482.00	-2,482.00	-1,373.50	-2,416.80	-371.1	-1,766.10	-1,006.10	-2,482.00	-174,765.50
Sum	0	0	0	0	0	0	0	0	0	0	0
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission Li	Transmission Li	Transmission Li	Transmission L	Transmission L	Transmission L	Transmission L	Transmission Li	Transmission Li
Transmission Link from Uvas release to Llagas recharge to Church Pond	0	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transmission Link from anderson release to butterfield to Butterfield	0.00	0	0.00	0.00	0	0	0	0.00	0.00	0.00	0.00
Transmission Link from anderson release to madronne to Madrone Ponds	7,888.80	811.20	1,677.50	3,368.70	1,265.00	0.00	0	1,000.00	1,000.00	3,368.80	252,306.40
Transmission Link from lex pl 1 to Rinconanda WTP	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 10 to NC IWRP recharge	0	0	0	0	0	0	0	0	0	0	0

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	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Transmission Link from lex pl 2 to San Tomas Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 3 to Wildcat Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 4 to Saratoga Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 5 to Rodeo Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 6 to Calabazas Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 7 to Regnart Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 8 to Mcclellan Pond recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 9 to Stevens Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local 2 coyote pond recharge to Coyote Pond Rec	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transmission Link from local 2 guad creek to Guadalupe creek	5,618.30	340	7,081.00	3,142.10	1,449.90	2,745.80	2,382.20	4,565.10	5,361.20	5,519.40	473,064.70
Transmission Link from local 2 lower coyote recharge to lower coyote r	1,460.00	468.20	1,365.80	1,460.00	1,092.00	429.50	574.7	856	1,092.00	1,460.00	115,344.50
Transmission Link from local 2 overfelt to Overfelt Ponds	0	0	0.00	0	0	0	0	0	0	0	0.00
Transmission Link from local 2 pen ponds to Penitencia Ponds	0	0	0.00	0	0	0	0	0	0	0	0.00
Transmission Link from local 2 upper coyote to NC Upper Coyote Recharg	171.7	50.4	0	171.7	134.9	45.9	64.3	111.3	134.9	171.7	10,574.50
Transmission Link from local Chesbro release to recharge to Church Pon	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transmission Link from local Uvas release to recharge to Uvas Recharge	10,117.80	1,787.30	3,381.80	6,791.40	4,724.80	9,556.80	6,995.30	8,713.50	10,117.80	6,791.40	604,406.20
Transmission Link from local alamitos creek to Alamitos Creek recharge	1,106.50	101.70	2,027.30	897.10	447.00	849.20	736.8	1,042.90	1,405.70	1,305.10	130,867.40
Transmission Link from local anderson 2 coyote ponds to NC Coyote Pond	10,233.10	1,801.90	10,243.20	10,950.00	5,422.20	303.60	782	4,567.90	4,705.10	10,950.00	804,684.40
Transmission Link from local anderson release to main ave ponds to Mai	2,122.80	321.9	451.4	906.50	455.9	0.00	0	451.4	436.6	906.50	75,399.00
Transmission Link from local anderson res to Church Pond and Llagas Re	0	0.00	0	0	0.00	0.00	0	0	0	0	0.00
Transmission Link from local anderson res to Lower Llagas Recharge	0.00	0	0.00	0	0	0	0	0	0.00	0.00	0.00
Transmission Link from local calabasas creek to Calabazas Creek Rechar	1,149.00	236	1,322.40	141	353	200	50	374.4	1,015.20	1,869.00	72,239.60
Transmission Link from local calero creek to Calero Creek recharge	724.00	43	853.60	404.90	186.8	353.80	307.00	588.30	689.00	711.30	60,737.60
Transmission Link from local guadalupe 1 to Los Capitancillos Ponds	2,141.90	23	2,658.10	1,111.40	597.9	1,132.30	982.30	1,365.50	1,681.70	1,982.40	167,864.50
Transmission Link from local guadaupe 2 to Almaden and Guadalupe Ponds	6,371.30	385.6	0.00	3,563.20	1,644.20	3,113.80	2,701.40	5,176.90	6,079.70	6,259.10	395,901.80
Transmission Link from local lg creek diversion to Los Gatos Ck rechar	0.00	262.00	5,463.00	3,392.00	377.10	496.00	50.10	496.00	1,914.80	992.00	254,369.50
Transmission Link from local lg pond diversion to Los Gatos Ponds	4,757.30	3,723.70	0.00	10,590.00	4,496.40	4,280.90	3,207.60	5,338.90	9,579.60	11,023.00	916,413.50
Transmission Link from local lower Llagas recharge to Lower Llagas Rec	2,980.30	294.6	2,415.60	2,473.20	375.7	491.5	1,466.60	4,340.00	6,435.90	4,023.90	335,899.50
Transmission Link from local penitencia creek to Penitencia Creek Rech	1,335.80	164	0	627	334	484	227	410	747	1,198.00	58,400.80
Transmission Link from local regnart creek to Regnart Creek Recharge	276.7	14	334.4	15	20	4	1	73.3	189.4	451.7	16,964.00
Transmission Link from local release 2 ford ponds to Ford Pond Recharg	0.00	0.00	0.00	0.00	0.00	0	0	0.00	0.00	0.00	0.00
Transmission Link from local release 2 upper coyote to Coyote Upper Re	15,284.40	1,622.20	10,228.70	15,768.70	4,173.80	514.30	0	6,598.90	7,514.40	15,511.30	1,093,437.20
Transmission Link from local rodeo creek to Rodeo Creek Recharge	67.6	2	126.00	2	3	0	0	16	50	178.7	5,041.90
Transmission Link from local ross creek recharge to Ross Creek Recharg	863.8	290	1,101.80	487	421	364	364	517	633	888	57,794.90
Transmission Link from local san tomoa creek to San Tomas Creek Rechar	691.4	188.5	751.7	299.1	271.5	170.3	233.9	311.8	388.5	771.9	48,733.70
Transmission Link from local saratoga div to NC IWRP recharge	0.00	0	0.00	0.00	0	0.00	0	0	0.00	0.00	0.00
Transmission Link from local saratogo creek to Saratoga Creek Recharge	2,683.40	648	3,269.80	1,133.00	593	1,203.20	981	958.2	1,846.00	3,512.20	184,730.40
Transmission Link from local silver creek to Silver Creek Recharge	722.40	85	682.90	715.00	331.00	93.00	262.00	58.00	103.00	730.00	53,018.00
Transmission Link from local stevens creek to Stevens Creek Recharge	2,561.20	599.6	3,414.40	3,650.00	2,484.30	1,437.40	1,362.20	2,691.50	3,631.60	3,650.00	273,138.50
Transmission Link from local thompson creek to Thompson Creek Recharge	750.7	47	1,019.30	617	362	52	178	32	109	927	54,076.10
Transmission Link from local wildcat creek to Wildcat Creek Recharge	443.50	122.50	488.60	194.40	176.50	110.70	152.10	202.70	252.50	484.10	30,481.60
Sum	82,523.60	14,433.30	60,358.20	72,871.50	32,193.00	28,432.20	24,061.40	50,857.30	67,113.60	85,636.30	6,545,890.30
demand_reduction_fctr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.10	-0.19	0.00	

Strategy B08

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Groundwater Storage (Acre-foot)	Groundwater	Groundwater	Groundwater S	Groundwater S	Groundwater S	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater Storage (Acre-foo	
Coyote Subbasin	19795.5	9862.8	22701.8	22831.7	12107.6	0.0	0.0	0.0	1182.2	22717.2	
LlagasSubbasin	80063.0	116369.6	145035.5	139062.5	122209.6	108063.6	95403.0	94734.5	99883.4	143211.7	
North County Santa Clara Sbb	278073.4	198147.0	333559.1	297614.4	217081.7	169358.0	70783.5	58664.8	83224.6	325814.7	
Sum	377931.9	324379.4	501296.4	459508.6	351398.9	277421.7	166186.5	153399.3	184290.2	491743.6	
Reservoir Storage Volume (Acre-foot)	Reservoir Stor	Reservoir Stor	Reservoir Stora	Reservoir Stora	Reservoir Stora	Reservoir Stor	Reservoir Stor	Reservoir Stor	Reservoir Stor	Reservoir Storage Volume (Acr	
Almaden Reservoir	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	351.0	
Anderson Reservoir	22000.0	22000.0	69864.0	38006.9	21939.3	21954.3	21550.4	22000.0	22000.0	51435.7	
Calero Reservoir	1000.0	693.5	5600.0	1000.0	932.6	1000.0	1000.0	993.9	2233.3	4457.5	
Chesbro Reservoir	500.0	500.0	4586.0	500.0	451.2	451.7	500.0	500.0	1293.4	4586.0	
Coyote Reservoir	1000.0	1000.0	5200.0	5200.0	997.2	993.7	910.4	1000.0	1000.0	5200.0	
Guadalupe Reservoir	200.0	168.9	1188.0	200.0	200.0	200.0	200.0	200.0	200.0	1188.0	
Lexington Reservoir	1475.3	685.8	16000.0	4475.5	1327.2	551.5	218.9	1825.8	3996.2	9395.4	
Pacheco Reservoir	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	
Stevens Creek Reservoir	31.0	181.5	2368.0	583.6	31.0	31.0	31.0	31.0	1609.5	2368.0	
Uvas Reservoir	2703.9	2824.1	5957.6	713.0	1104.1	557.6	500.0	3650.5	6249.7	6258.0	
cvp caryover	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29325.8	
cvp overflow not used	0.0	93667.7	275365.5	275365.5	275365.5	275365.5	275365.5	275365.5	275365.5	340872.9	
semitropic reservoir	242493.3	316519.1	349912.1	346995.7	308097.7	278315.9	242579.6	204819.2	170730.0	298146.7	
swp caryyover	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16744.7	
swp overflow not used	0.0	15421.0	122465.6	122465.6	122465.6	122465.6	122465.6	122465.6	122465.6	126407.5	
Sum	276603.5	458861.7	863706.8	800705.8	738111.5	707086.8	670521.5	638051.5	612343.2	901737.2	
Groundwater Natural Recharge (Acre-foot)	Groundwater	Groundwater	Groundwater N	Groundwater N	Groundwater N	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater N	Groundwater N
Coyote Subbasin	2535.0	1326.9	5335.0	1838.8	1544.9	1101.9	1457.8	2541.2	3273.6	2141.8	183393.1
LlagasSubbasin	24664.6	19659.9	33521.4	20971.2	20239.6	19330.3	21198.0	22272.2	21962.7	22365.9	1888278.1
North County Santa Clara Sbb	39177.8	26853.8	56312.9	30423.5	26962.8	27176.6	25998.0	24763.5	29247.2	34205.1	2881697.9
Sum	66377.4	47840.6	95169.3	53233.5	48747.3	47608.8	48653.8	49576.9	54483.5	58712.8	4953369.1
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission Li	Transmission Li	Transmission Li	Transmission L	Transmission L	Transmission L	Transmission L	Transmission Li	Transmission Li
Transmission Link from lake elsman to sjw west to SJ Water Company	12613.8	1362.0	14943.8	3997.9	3455.9	6503.9	3720.9	6431.9	3455.9	7405.9	815457.0
Transmission Link from stanford water to Stanford Moffett Field Ames	823.0	64.0	692.0	187.0	160.0	303.0	174.0	296.0	160.0	681.0	51733.2
Sum	13436.8	1426.0	15635.8	4184.9	3615.9	6806.9	3894.9	6727.9	3615.9	8086.9	867190.3
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission Li	Transmission Li	Transmission Li	Transmission L	Transmission L	Transmission L	Transmission L	Transmission Li	Transmission Li
Transmission Link from SCRWA to Morgan Hill to Morgan Hill Service Are	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from deliver recycled to gilroy to Gilroy Service Ar	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	131196.6
Transmission Link from hecker pass recycled to Gilroy Service Area	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from morgan hill recycled to Morgan Hill Service Are	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from recycle pa to palo alto to Palo Alto Service Ar	1055.8	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	69136.2
Transmission Link from recycle sv to sunnyvale to Sunnyvale Service Ar	1900.0	2400.0	2400.0	2400.0	2400.0	2400.0	2400.0	2400.0	2400.0	2400.0	196297.1
Transmission Link from recycled 1 to Llagas Ag	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	98400.0
Transmission Link from recycled SB to SJWC to SJ Water Company	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	246459.7
Transmission Link from recycled SB to santa clara to Santa Clara Servi	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	383760.0
Transmission Link from recycled pa to mountain view to Mountain View S	994.2	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	98961.3

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Transmission Link from recycled sb to milpitas to Milpitas Service Are	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	172692.0
Transmission Link from recycled sb to sj muni north to SJ Muni North	9500.4	9839.7	9839.7	9839.7	9839.7	9839.7	9839.7	9839.7	9839.7	9839.7	806516.1
Transmission Link from recycled sb to sjMuni edenvale to SJ Muni servi	4071.6	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	306387.9
Sum	30149.6	30649.5	30649.5	30649.5	30649.5	30649.5	30649.5	30649.5	30649.5	30649.5	2509806.9
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission Li	Transmission Li	Transmission Li	Transmission L	Transmission L	Transmission L	Transmission L	Transmission Li	Transmission Li
Transmission Link from hh to PHills to Purisma Hills Service Area	1828.0	1828.0	1828.0	1828.0	1828.0	1516.0	1516.0	1516.0	1516.0	1828.0	147200.7
Transmission Link from hh to Sunnyvale to Sunnyvale Service Area	13249.0	13249.0	13249.0	13249.0	13249.0	10988.0	10988.0	10988.0	10988.0	13249.0	1066882.9
Transmission Link from hh to milpitas service area to Milpitas Service	8451.0	8451.0	8451.0	8451.0	8451.0	7008.8	7008.8	7008.8	7008.8	8451.0	680521.4
Transmission Link from hh to moffett ames to Stanford Moffett Field Am	3395.0	3395.0	3395.0	3395.0	3395.0	2815.6	2815.6	2815.6	2815.6	3395.0	273384.2
Transmission Link from hh to mountain view to Mountain View Service Ar	14487.4	14407.8	14407.8	14407.8	14407.8	12120.0	12120.0	11726.7	11161.0	14407.8	1155651.8
Transmission Link from hh to palo alto to Palo Alto Service Area	14295.5	14397.2	14397.2	14397.2	14397.2	12121.7	12121.7	11741.0	11184.9	14397.2	1154738.7
Transmission Link from hh to santa clara to Santa Clara Service Area	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from hh to sj muni n to SJ Muni North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sum	55705.9	55728.0	55728.0	55728.0	55728.0	46570.3	46570.3	45796.3	44674.5	55728.0	4478379.6
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission Li	Transmission Li	Transmission Li	Transmission L	Transmission L	Transmission L	Transmission L	Transmission Li	Transmission Li
Transmission Link from local stevens creek flood release to Tributary	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from local uvas flood release to Tributary Inflow 5	0.0	0.0	35212.7	0.0	0.0	0.0	0.0	1311.8	4696.4	13106.9	978950.6
Transmission Link from release from anderson to cvp pl to Anderson PL	420.5	5019.4	59949.9	2174.2	10532.8	344.8	442.7	4730.9	4585.0	971.2	668985.8
Transmission Link from release from calero to cvp pl to Calero PL rele	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from release from pacheco to Tributary Inflow 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sum	420.5	5019.4	95162.6	2174.2	10532.8	344.8	442.7	6042.7	9281.4	14078.1	1647936.3
Streamflow (below node or reach listed) (All Rivers) (Acre-foot)	Streamflow (b	Streamflow (b	Streamflow (be	Streamflow (be	Streamflow (be	Streamflow (b	Streamflow (b	Streamflow (b	Streamflow (b	Streamflow (be	Streamflow (be
SWP 1 Supply 0 \ Headflow	61999.1	10999.8	96998.6	29999.6	29999.6	56999.2	21999.7	27999.6	23999.6	63999.1	4939927.4
cvp 0 source supply 0 \ Headflow	121128.4	69175.9	152497.8	94555.5	64999.0	100323.6	64999.0	75023.6	81706.6	108114.6	8991576.1
Demand Site Inflows and Outflows (Demand Site: NC Coyote Pond Recharge) (	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from IPR Coyote	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Inflow from Lower Coyote Creek	10233.1	1801.9	10880.9	10950.0	5668.1	303.6	782.0	4567.9	5482.2	10950.0	810884.7
Inflow from cvp 3 santa clara conduit	390.4	930.0	0.0	0.0	0.0	339.9	0.0	0.0	864.9	0.0	7979.7
Outflow to North County Santa Clara Sbb	-10623.5	-2731.9	-10880.9	-10950.0	-5668.1	-643.5	-782.0	-4567.9	-6347.0	-10950.0	-818864.4
Sum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Demand Site Inflows and Outflows (Demand Site: Ford Pond Recharge) (Acre-f	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from IPR Coyote	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Inflow from Lower Coyote Creek	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Outflow to North County Santa Clara Sbb	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Demand Site Inflows and Outflows (Demand Site: Los Gatos Ponds) (Acre-foot	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from IPR LG Ponds	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Inflow from Los Gatos Creek	4757.3	3731.7	0.0	10590.0	4496.4	4280.9	3207.6	5338.9	9579.6	11023.0	911150.5
Inflow from SWP 3 central pipeline	0.0	516.1	0.0	0.0	207.9	0.0	0.0	293.4	0.0	4758.5	68154.4
Inflow from cvp 7 central pl	16843.6	714.4	0.0	1309.0	2041.3	7201.2	0.0	2177.1	1521.7	6013.6	284180.9

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	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Outflow to North County Santa Clara Sbb	-21600.9	-4962.2	0.0	-11899.0	-6745.6	-11482.1	-3207.6	-7809.4	-11101.3	-21795.2	-1263485.7
Sum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Demand Site Inflows and Outflows (Demand Site: Almaden and Guadalupe Po	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from Guadalupe Creek	6,371.30	385.6	0.00	3,563.20	1,644.20	3,113.80	2,701.40	5,176.90	6,079.70	6,259.10	394,283.00
Inflow from IPR Guadalupe	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inflow from SWP 4 almaden valley pipeline	126.80	432.70	0.00	894.70	0.00	0.00	0.00	0.00	0.00	667.30	13,394.40
Inflow from cvp 5 almaden valley pl	262.10	1,087.60	0.00	2,793.00	370.60	0.00	0.00	0.00	0.00	680.40	44,373.80
Outflow to North County Santa Clara Sbb	-6,760.20	-1,905.80	0.00	-7,250.90	-2,014.80	-3,113.80	-2,701.40	-5,176.90	-6,079.70	-7,606.90	-452,051.20
Sum	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demand Site Inflows and Outflows (Demand Site: Kooser) (Acre-foot)	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from IPR Guadalupe	0.00	0	0.00	0.00	0	0	0	0	0	0.00	0.00
Inflow from SWP 4 almaden valley pipeline	47.00	94.4	0.00	436.80	0	67.1	0	0	0	584.00	15,690.60
Inflow from cvp 5 almaden valley pl	245.8	243.2	0	878.4	270.8	54.4	0	292.8	432	584.00	53,565.90
Outflow to North County Santa Clara Sbb	-292.80	-337.6	0.00	-1,315.20	-270.8	-121.5	0	-292.8	-432	-1,168.00	-69,256.50
Sum	0.00	0	0.00	0.00	0	0	0	0	0	0.00	0.00
Demand Site Inflows and Outflows (Demand Site: Los Capitancillos Ponds) (Ac	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from Guadalupe Creek	2,141.90	23	2,828.10	1,111.40	597.9	1,132.30	982.30	1,365.50	1,681.70	1,982.40	167,657.90
Inflow from IPR Guadalupe	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inflow from SWP 4 almaden valley pipeline	46.10	157.3	0.00	412.50	0	0.00	0	0.00	0.00	339.30	10,797.20
Inflow from cvp 5 almaden valley pl	95.30	405.3	0.00	1,112.80	134.70	0.00	0.00	0.00	0.00	408.00	28,502.30
Outflow to North County Santa Clara Sbb	-2,283.30	-585.7	-2,828.10	-2,636.70	-732.60	-1,132.30	-982.30	-1,365.50	-1,681.70	-2,729.60	-206,957.40
Sum	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demand Site Inflows and Outflows (Demand Site: Overfelt Ponds) (Acre-foot)	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from IPR Penitencia	0	0	0.00	0	0	0	0	0	0	0	0.00
Inflow from Penitencia Creek	0	0	0.00	0.00	0	0	0	0	0	0	0.00
Inflow from SWP 2 SBA pipeline	450.7	363.2	1,460.00	1,460.00	360.5	746.30	30.4	323.8	504.7	1,460.00	101,997.40
Outflow to North County Santa Clara Sbb	-450.7	-363.2	-1,460.00	-1,460.00	-360.5	-746.30	-30.4	-323.8	-504.7	-1,460.00	-101,997.40
Sum	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Penitencia Ponds) (Acre-foo	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from IPR Penitencia	0	0	0.00	0	0	0	0	0	0	0	0.00
Inflow from Penitencia Creek	0	0	0.00	0.00	0.00	0	0	0	0	0	0.00
Inflow from SWP 2 SBA pipeline	766.20	617.4	2,482.00	2,482.00	612.90	1,268.60	51.6	550.4	857.9	2,482.00	173,395.60
Outflow to North County Santa Clara Sbb	-766.20	-617.4	-2,482.00	-2,482.00	-612.90	-1,268.60	-51.6	-550.4	-857.9	-2,482.00	-173,395.60
Sum	0	0	0	0	0	0	0	0	0	0	0
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission Li	Transmission Li	Transmission Li	Transmission L	Transmission L	Transmission L	Transmission L	Transmission Li	Transmission Li
Transmission Link from Uvas release to Llagas recharge to Church Pond	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transmission Link from anderson release to butterfield to Butterfield	0.00	0	0.00	0.00	0	0	0	0.00	0.00	0.00	0.00
Transmission Link from anderson release to madronne to Madrone Ponds	7,888.80	811.2	1,677.50	3,368.80	852.50	0	0	1,000.00	1,250.00	3,368.80	237,358.70
Transmission Link from lex pl 1 to Rinconanda WTP	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 10 to NC IWRP recharge	0	0	0	0	0	0	0	0	0	0	0

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Transmission Link from lex pl 2 to San Tomas Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 3 to Wildcat Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 4 to Saratoga Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 5 to Rodeo Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 6 to Calabazas Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 7 to Regnart Creek Recharge	0	0	0	0	0	0	0	0	0	0	0.00
Transmission Link from lex pl 8 to Mcclellan Pond recharge	0	0	0.00	0	0	0	0	0	0	0	0.00
Transmission Link from lex pl 9 to Stevens Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local 2 coyote pond recharge to Coyote Pond Rec	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transmission Link from local 2 guad creek to Guadalupe creek	5,618.30	340	7,081.00	3,142.10	1,449.90	2,745.80	2,382.20	4,565.10	5,361.20	5,519.40	473,625.50
Transmission Link from local 2 lower coyote recharge to lower coyote r	1,460.00	468.2	1,450.80	1,460.00	1,092.00	429.5	574.7	856	1,092.00	1,460.00	115,406.80
Transmission Link from local 2 overfelt to Overfelt Ponds	0	0	0.00	0	0	0	0	0	0	0	0.00
Transmission Link from local 2 pen ponds to Penitencia Ponds	0	0	0.00	0	0	0	0	0	0	0	0.00
Transmission Link from local 2 upper coyote to NC Upper Coyote Recharg	171.7	50.4	0	171.7	134.9	45.9	64.3	111.3	134.9	171.7	10,575.50
Transmission Link from local Chesbro release to recharge to Church Pon	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transmission Link from local Uvas release to recharge to Uvas Recharge	10,117.80	1,787.30	3,381.80	6,791.40	3,930.70	9,556.80	6,995.30	8,713.50	10,117.80	6,791.40	584,503.60
Transmission Link from local alamitos creek to Alamitos Creek recharge	1,106.50	101.70	2,154.80	897.10	447.00	849.20	736.8	1,042.90	1,405.70	1,305.10	131,066.70
Transmission Link from local anderson 2 coyote ponds to NC Coyote Pond	10,233.10	1,801.90	10,880.90	10,950.00	5,668.10	303.6	782	4,567.90	5,482.20	10,950.00	810,884.70
Transmission Link from local anderson release to main ave ponds to Mai	2,122.80	218.3	451.4	906.50	344.1	0	0	451.4	561.6	906.50	66,430.90
Transmission Link from local anderson res to Church Pond and Llagas Re	0	0	0	0.00	0	0	0	0	0	0	0.00
Transmission Link from local anderson res to Lower Llagas Recharge	0.00	0	0.00	0	0	0	0	0	0.00	0.00	0.00
Transmission Link from local calabasas creek to Calabazas Creek Rechar	1,149.00	236	1,468.30	141	353	200	50	374.4	1,015.20	1,869.00	72,363.80
Transmission Link from local calero creek to Calero Creek recharge	724.00	43	906.70	404.90	186.8	353.80	307.00	588.30	689.00	711.30	60,846.70
Transmission Link from local guadalupe 1 to Los Capitancillos Ponds	2,141.90	23	2,828.10	1,111.40	597.9	1,132.30	982.30	1,365.50	1,681.70	1,982.40	167,657.90
Transmission Link from local guadaupe 2 to Almaden and Guadalupe Ponds	6,371.30	385.6	0.00	3,563.20	1,644.20	3,113.80	2,701.40	5,176.90	6,079.70	6,259.10	394,283.00
Transmission Link from local lg creek diversion to Los Gatos Ck rechar	0.00	263.10	5,803.10	3,392.00	377.10	496.00	50.10	496.00	1,914.80	992.00	254,303.80
Transmission Link from local lg pond diversion to Los Gatos Ponds	4,757.30	3,731.70	0.00	10,590.00	4,496.40	4,280.90	3,207.60	5,338.90	9,579.60	11,023.00	911,150.50
Transmission Link from local lower Llagas recharge to Lower Llagas Rec	2,980.30	294.6	2,415.60	1,912.10	368.2	498.9	1,466.60	4,340.00	6,435.90	4,023.90	324,788.30
Transmission Link from local penitencia creek to Penitencia Creek Rech	1,335.80	164	0	627	334	484	227	410	747	1,198.00	58,079.60
Transmission Link from local regnart creek to Regnart Creek Recharge	276.7	14	365.1	15	20	4	1	73.3	189.4	451.7	16,992.80
Transmission Link from local release 2 ford ponds to Ford Pond Recharg	0.00	0.00	0.00	0.00	0.00	0	0	0.00	0.00	0.00	0.00
Transmission Link from local release 2 upper coyote to Coyote Upper Re	15,284.40	1,905.20	10,228.70	15,768.70	4,397.00	514.3	0	6,598.90	8,617.50	15,511.30	1,102,237.90
Transmission Link from local rodeo creek to Rodeo Creek Recharge	67.6	2	126.00	2	3	0	0	16	50	178.7	5,041.90
Transmission Link from local ross creek recharge to Ross Creek Recharg	863.8	290	1,220.20	487	421	364	364	517	633	888	57,904.60
Transmission Link from local san tomoa creek to San Tomas Creek Rechar	691.4	188.5	815.5	299.1	271.5	170.3	233.9	311.8	388.5	771.9	48,780.40
Transmission Link from local saratoga div to NC IWRP recharge	0.00	0	0.00	0.00	0	0.00	0	0	0.00	0.00	0.00
Transmission Link from local saratogo creek to Saratoga Creek Recharge	2,683.40	648	3,571.70	1,133.00	593	1,203.20	981	958.2	1,846.00	3,512.20	184,951.50
Transmission Link from local silver creek to Silver Creek Recharge	722.40	85	725.40	715.00	331.00	93.00	262.00	58.00	103.00	730.00	53,049.10
Transmission Link from local stevens creek to Stevens Creek Recharge	2,561.20	599.6	3,627.00	3,650.00	2,484.30	1,437.40	1,362.20	2,691.50	3,631.60	3,650.00	273,294.10
Transmission Link from local thompson creek to Thompson Creek Recharge	750.7	47	1,083.10	617	362	52	178	32	109	927	54,122.80
Transmission Link from local wildcat creek to Wildcat Creek Recharge	443.50	122.50	530.00	194.40	176.50	110.70	152.10	202.70	252.50	484.10	30,512.00
Sum	82,523.60	14,621.80	62,792.80	72,310.40	31,336.10	28,439.70	24,061.40	50,857.30	69,368.80	85,636.30	6,500,213.30
demand_reduction_fctr	0.00	0.00	0.00	0.00	0.00	0.00	-0.05	-0.19	-0.25	0.00	

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	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Groundwater Storage (Acre-foot)	Groundwater	Groundwater	Groundwater S	Groundwater S	Groundwater S	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater Storage (Acre-foo	
Coyote Subbasin	19795.5	8617.6	23893.7	22796.0	11138.9	0.0	0.0	24.4	1350.1	23651.6	
LlagasSubbasin	80063.0	110978.6	143327.1	134148.1	118772.3	104611.6	91951.0	94331.6	102956.3	143072.1	
North County Santa Clara Sbb	278073.4	178265.5	335305.7	294011.5	207699.0	159976.5	42835.3	55367.0	110749.3	325284.6	
Sum	377931.9	297861.7	502526.4	450955.6	337610.2	264588.1	134786.3	149723.0	215055.7	492008.2	
Reservoir Storage Volume (Acre-foot)	Reservoir Stor	Reservoir Stor	Reservoir Stora	Reservoir Stora	Reservoir Stora	Reservoir Stor	Reservoir Stor	Reservoir Stor	Reservoir Stor	Reservoir Storage Volume (Acr	
Almaden Reservoir	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	351.0	
Anderson Reservoir	22000.0	21765.5	69864.0	31818.9	21939.3	21954.3	21550.4	22000.0	22000.0	49760.1	
Calero Reservoir	1000.0	693.5	5600.0	1000.0	932.6	1000.0	1000.0	993.9	2233.3	4457.5	
Chesbro Reservoir	500.0	500.0	4586.0	500.0	436.5	451.7	500.0	500.0	1293.4	4586.0	
Coyote Reservoir	1000.0	989.3	5200.0	5200.0	997.2	993.7	910.4	1000.0	1000.0	5200.0	
Guadalupe Reservoir	200.0	168.9	1188.0	200.0	200.0	200.0	200.0	200.0	200.0	1188.0	
Lexington Reservoir	1475.3	721.8	16000.0	4482.3	1329.1	552.1	219.1	1825.9	3996.2	9536.7	
Pacheco Reservoir	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	
Stevens Creek Reservoir	31.0	181.5	2368.0	513.0	31.0	31.0	31.0	31.0	1459.0	2368.0	
Uvas Reservoir	2703.9	2824.1	5987.7	1486.9	1104.1	557.6	500.0	3963.6	6258.0	6258.0	
cvp caryover	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2354.7	
cvp overflow not used	0.0	19374.6	151376.8	151376.8	151376.8	151376.8	151376.8	151376.8	151376.8	163986.2	
semitropic reservoir	242493.3	50486.1	100837.5	85848.4	46951.1	17169.3	0.0	0.0	0.0	105635.0	
swp caryyover	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2018.5	
swp overflow not used	0.0	0.0	45573.3	45573.3	45573.3	45573.3	45573.3	45573.3	45573.3	45573.3	
Sum	276603.5	102905.4	413781.3	333199.6	276071.0	245059.7	227061.0	232664.4	240590.0	408272.9	
Groundwater Natural Recharge (Acre-foot)	Groundwater	Groundwater	Groundwater N	Groundwater N	Groundwater N	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater N	Groundwater N
Coyote Subbasin	2535.0	1326.9	5335.0	1838.8	1544.9	1101.9	1457.8	2541.2	3273.6	2141.8	183393.1
LlagasSubbasin	24664.6	19659.9	33521.4	20971.2	20239.6	19330.3	21198.0	22272.2	21962.7	22365.9	1888278.1
North County Santa Clara Sbb	39177.8	26853.8	56312.9	30423.5	26962.8	27176.6	25998.0	24763.5	29247.2	34205.1	2881697.9
Sum	66377.4	47840.6	95169.3	53233.5	48747.3	47608.8	48653.8	49576.9	54483.5	58712.8	4953369.1
Transmission Link Flow (Acre-foot)	Transmission	Transmission	Transmission Li	Transmission Li	Transmission Li	Transmission	Transmission	Transmission	Transmission	Transmission Li	Transmission Li
Transmission Link from lake elsman to sjw west to SJ Water Company	12613.8	1362.0	14943.8	3997.9	3455.9	6503.9	3720.9	6431.9	3455.9	7405.9	815457.0
Transmission Link from stanford water to Stanford Moffett Field Ames	823.0	64.0	692.0	187.0	160.0	303.0	174.0	296.0	160.0	681.0	51733.2
Sum	13436.8	1426.0	15635.8	4184.9	3615.9	6806.9	3894.9	6727.9	3615.9	8086.9	867190.3
Transmission Link Flow (Acre-foot)	Transmission	Transmission	Transmission Li	Transmission Li	Transmission Li	Transmission	Transmission	Transmission	Transmission	Transmission Li	Transmission Li
Transmission Link from SCRWA to Morgan Hill to Morgan Hill Service Are	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from deliver recycled to gilroy to Gilroy Service Ar	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	131196.6
Transmission Link from hecker pass recycled to Gilroy Service Area	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from morgan hill recycled to Morgan Hill Service Are	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from recycle pa to palo alto to Palo Alto Service Ar	1055.8	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	69136.2
Transmission Link from recycle sv to sunnyvale to Sunnyvale Service Ar	1900.0	2400.0	2400.0	2400.0	2400.0	2400.0	2400.0	2400.0	2400.0	2400.0	196297.1
Transmission Link from recycled 1 to Llagas Ag	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	98400.0
Transmission Link from recycled SB to SJWC to SJ Water Company	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	3286.5	85.5	3041.7	243114.7
Transmission Link from recycled SB to santa clara to Santa Clara Servi	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	383760.0
Transmission Link from recycled pa to mountain view to Mountain View S	994.2	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	98961.3

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	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Transmission Link from recycled sb to milpitas to Milpitas Service Are	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	172692.0
Transmission Link from recycled sb to sj muni north to SJ Muni North	9500.4	9839.7	9839.7	9839.7	9839.7	9839.7	9839.7	9304.8	8012.7	9839.7	804154.2
Transmission Link from recycled sb to sjMuni edenvale to SJ Muni servi	4071.6	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	306387.9
Sum	30149.6	30649.5	30649.5	30649.5	30649.5	30649.5	30649.5	30359.5	25866.4	30649.5	2504100.1
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission Li	Transmission Li	Transmission Li	Transmission L	Transmission L	Transmission L	Transmission L	Transmission Li	Transmission Li
Transmission Link from hh to PHills to Purisma Hills Service Area	1828.0	1828.0	1828.0	1828.0	1828.0	1516.0	1516.0	1516.0	1516.0	1828.0	147200.7
Transmission Link from hh to Sunnyvale to Sunnyvale Service Area	13249.0	13249.0	13249.0	13249.0	13249.0	10988.0	10988.0	10988.0	10982.8	13249.0	1066877.7
Transmission Link from hh to milpitas service area to Milpitas Service	8451.0	8451.0	8451.0	8451.0	8451.0	7008.8	7008.8	7008.8	6890.2	8451.0	680402.7
Transmission Link from hh to moffett ames to Stanford Moffett Field Am	3395.0	3395.0	3395.0	3395.0	3395.0	2815.6	2815.6	2815.6	2815.6	3395.0	273384.2
Transmission Link from hh to mountain view to Mountain View Service Ar	14487.4	14407.8	14407.8	14407.8	14407.8	12120.0	12120.0	9259.3	7165.5	14407.8	1146124.3
Transmission Link from hh to palo alto to Palo Alto Service Area	14295.5	14397.2	14397.2	14397.2	14397.2	12121.7	12121.7	9352.6	7314.0	14397.2	1145451.6
Transmission Link from hh to santa clara to Santa Clara Service Area	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from hh to sj muni n to SJ Muni North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sum	55705.9	55728.0	55728.0	55728.0	55728.0	46570.3	46570.3	40940.4	36684.2	55728.0	4459441.3
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission Li	Transmission Li	Transmission Li	Transmission L	Transmission L	Transmission L	Transmission L	Transmission Li	Transmission Li
Transmission Link from local stevens creek flood release to Tributary	0.0	0.0	21594.8	0.0	0.0	0.0	0.0	0.0	642.9	2069.0	278696.1
Transmission Link from local uvas flood release to Tributary Inflow 5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from release from anderson to cvp pl to Anderson PL	420.5	4393.2	59949.9	7990.4	6702.6	344.8	442.7	4730.9	7088.6	971.2	671815.5
Transmission Link from release from calero to cvp pl to Calero PL rele	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from release from pacheco to Tributary Inflow 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sum	420.5	4393.2	81544.7	7990.4	6702.6	344.8	442.7	4730.9	7731.5	3040.2	950511.6
Streamflow (below node or reach listed) (All Rivers) (Acre-foot)	Streamflow (b	Streamflow (b	Streamflow (be	Streamflow (be	Streamflow (be	Streamflow (b	Streamflow (b	Streamflow (b	Streamflow (b	Streamflow (be	Streamflow (be
SWP 1 Supply 0 \ Headflow	61999.1	10999.8	96998.6	29999.6	29999.6	56999.2	21999.7	27999.6	23999.6	63999.1	4939927.4
cvp 0 source supply 0 \ Headflow	121128.4	69175.9	152497.8	94555.5	64999.0	100323.6	64999.0	75023.6	81706.6	108114.6	8991576.1
Demand Site Inflows and Outflows (Demand Site: NC Coyote Pond Recharge) (	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from IPR Coyote	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Inflow from Lower Coyote Creek	10233.1	1770.0	10348.8	10950.0	3784.0	303.6	782.0	4567.9	4705.1	10950.0	803578.1
Inflow from cvp 3 santa clara conduit	390.4	0.0	0.0	0.0	0.0	339.9	0.0	0.0	0.0	0.0	1291.0
Outflow to North County Santa Clara Sbb	-10623.5	-1770.0	-10348.8	-10950.0	-3784.0	-643.5	-782.0	-4567.9	-4705.1	-10950.0	-804869.1
Sum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Demand Site Inflows and Outflows (Demand Site: Ford Pond Recharge) (Acre-f	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from IPR Coyote	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Inflow from Lower Coyote Creek	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Outflow to North County Santa Clara Sbb	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Demand Site Inflows and Outflows (Demand Site: Los Gatos Ponds) (Acre-foot	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from IPR LG Ponds	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Inflow from Los Gatos Creek	4757.3	3799.2	0.0	8573.5	4500.6	4282.3	3208.0	5339.0	9579.6	11263.4	934424.5
Inflow from SWP 3 central pipeline	0.0	199.1	0.0	0.0	419.4	0.0	0.0	0.0	0.0	4680.4	61908.3
Inflow from cvp 7 central pl	16843.6	336.9	0.0	1304.3	1371.6	7200.1	0.0	0.0	0.0	5936.6	273168.5

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Outflow to North County Santa Clara Sbb	-21600.9	-4335.2	0.0	-9877.8	-6291.7	-11482.3	-3208.0	-5339.0	-9579.6	-21880.5	-1269501.3
Sum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Demand Site Inflows and Outflows (Demand Site: Almaden and Guadalupe Po	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from Guadalupe Creek	6,371.30	385.6	0.00	2,706.40	1,644.20	3,113.80	2,701.40	5,176.90	6,079.70	6,259.10	401,725.80
Inflow from IPR Guadalupe	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inflow from SWP 4 almaden valley pipeline	126.80	83.1	0.00	750.90	0.00	0.00	0.00	0.00	0.00	667.30	10,731.70
Inflow from cvp 5 almaden valley pl	262.10	227.30	0.00	1,704.90	270.40	0.00	0.00	0.00	0.00	680.40	33,445.00
Outflow to North County Santa Clara Sbb	-6,760.20	-696.00	0.00	-5,162.20	-1,914.60	-3,113.80	-2,701.40	-5,176.90	-6,079.70	-7,606.90	-445,902.50
Sum	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demand Site Inflows and Outflows (Demand Site: Kooser) (Acre-foot)	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from IPR Guadalupe	0.00	0	0.00	0.00	0	0	0	0	0	0.00	0.00
Inflow from SWP 4 almaden valley pipeline	47.00	21.7	0.00	337.60	0	67.1	0	0	0	584.00	14,382.70
Inflow from cvp 5 almaden valley pl	245.8	49.6	0	573	244.1	54.4	0	0	243	584.00	45,377.10
Outflow to North County Santa Clara Sbb	-292.80	-71.3	0.00	-910.60	-244.1	-121.5	0	0	-243	-1,168.00	-59,759.80
Sum	0.00	0	0.00	0.00	0	0	0	0	0	0.00	0.00
Demand Site Inflows and Outflows (Demand Site: Los Capitancillos Ponds) (Ac	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from Guadalupe Creek	2,141.90	23	2,686.30	1,149.70	597.9	1,132.30	982.30	1,365.50	1,681.70	1,982.40	167,396.90
Inflow from IPR Guadalupe	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inflow from SWP 4 almaden valley pipeline	46.10	36.2	0.00	362.40	0	0.00	0	0.00	0.00	339.30	9,654.60
Inflow from cvp 5 almaden valley pl	95.30	82.7	0.00	702.60	98.30	0.00	0.00	0.00	0.00	408.00	23,106.50
Outflow to North County Santa Clara Sbb	-2,283.30	-141.9	-2,686.30	-2,214.70	-696.20	-1,132.30	-982.30	-1,365.50	-1,681.70	-2,729.60	-200,157.90
Sum	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demand Site Inflows and Outflows (Demand Site: Overfelt Ponds) (Acre-foot)	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from IPR Penitencia	0	0	0.00	0	0	0	0	0	0	0	0.00
Inflow from Penitencia Creek	0	0	0.00	0.00	0	0	0	0	0	0	0.00
Inflow from SWP 2 SBA pipeline	450.7	124	1,460.00	1,460.00	236.5	746.3	30.4	0	0	1,460.00	93,435.50
Outflow to North County Santa Clara Sbb	-450.7	-124	-1,460.00	-1,460.00	-236.5	-746.3	-30.4	0	0	-1,460.00	-93,435.50
Sum	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Penitencia Ponds) (Acre-foo	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from IPR Penitencia	0	0	0.00	0	0	0	0	0	0	0	0.00
Inflow from Penitencia Creek	0	0	0.00	0.00	0.00	0	0	0	0	0	0.00
Inflow from SWP 2 SBA pipeline	766.20	210.8	2,482.00	2,482.00	402.10	1268.7	51.6	0	0	2,482.00	158,840.30
Outflow to North County Santa Clara Sbb	-766.20	-210.8	-2,482.00	-2,482.00	-402.10	-1268.7	-51.6	0	0	-2,482.00	-158,840.30
Sum	0	0	0	0	0	0	0	0	0	0	0
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission Li	Transmission Li	Transmission Li	Transmission L	Transmission L	Transmission L	Transmission L	Transmission Li	Transmission Li
Transmission Link from Uvas release to Llagas recharge to Church Pond	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from anderson release to butterfield to Butterfield	0.00	0	0.00	0.00	0	0	0	0.00	0.00	0.00	0.00
Transmission Link from anderson release to madronne to Madrone Ponds	7,888.80	705.5	1,677.50	3,368.80	1,237.50	0	0	1,000.00	1,000.00	3,368.80	257,741.10
Transmission Link from lex pl 1 to Rinconanda WTP	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 10 to NC IWRP recharge	0	0	0	0	0	0	0	0	0	0	0

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Transmission Link from lex pl 2 to San Tomas Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 3 to Wildcat Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 4 to Saratoga Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 5 to Rodeo Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 6 to Calabazas Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 7 to Regnart Creek Recharge	0	0	290.9	0	0	0	0	0	88.3	49.3	10538.8
Transmission Link from lex pl 8 to Mcclellan Pond recharge	0	0	1418.8	0	0	0	0	0	483	148.8	46826.2
Transmission Link from lex pl 9 to Stevens Creek Recharge	0	0	200.4	0	0	0	0	0	0	0	287.1
Transmission Link from local 2 coyote pond recharge to Coyote Pond Rec	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transmission Link from local 2 guad creek to Guadalupe creek	5,618.30	340	7,081.00	3,589.30	1,449.90	2,745.80	2,382.20	4,565.10	5,361.20	5,519.40	472,893.20
Transmission Link from local 2 lower coyote recharge to lower coyote r	1,460.00	348.2	1,379.80	1,460.00	1,085.20	429.5	574.7	856	1,092.00	1,460.00	115,209.30
Transmission Link from local 2 overfelt to Overfelt Ponds	0	0	0.00	0	0	0	0	0	0	0	0.00
Transmission Link from local 2 pen ponds to Penitencia Ponds	0	0	0.00	0	0	0	0	0	0	0	0.00
Transmission Link from local 2 upper coyote to NC Upper Coyote Recharg	171.7	35.4	0	146.9	133.9	45.9	64.3	111.3	134.9	171.7	10,712.10
Transmission Link from local Chesbro release to recharge to Church Pon	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transmission Link from local Uvas release to recharge to Uvas Recharge	10,117.80	1,787.30	3,381.80	6,791.40	4,800.80	9,556.80	6,995.30	8,713.50	10,117.80	6,791.40	606,664.10
Transmission Link from local alamitos creek to Alamitos Creek recharge	1,106.50	101.70	2,048.40	887.20	447.00	849.20	736.8	1,042.90	1,405.70	1,305.10	130,872.50
Transmission Link from local anderson 2 coyote ponds to NC Coyote Pond	10,233.10	1,770.00	10,348.80	10,950.00	3,784.00	303.6	782	4,567.90	4,705.10	10,950.00	803,578.10
Transmission Link from local anderson release to main ave ponds to Mai	2,122.80	304.5	451.4	1,302.10	551.3	0	0	500	500	906.50	79,989.30
Transmission Link from local anderson res to Church Pond and Llagas Re	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local anderson res to Lower Llagas Recharge	0.00	0	0.00	0	0	0	0	0	0.00	0.00	0.00
Transmission Link from local calabasas creek to Calabazas Creek Rechar	1,149.00	236	1,354.40	141	353	200	50	374.4	1,015.20	1,869.00	72,234.30
Transmission Link from local calero creek to Calero Creek recharge	724.00	43	862.40	462.50	186.8	353.80	307.00	588.30	689.00	711.30	60,708.20
Transmission Link from local guadalupe 1 to Los Capitancillos Ponds	2,141.90	23	2,686.30	1,149.70	597.9	1,132.30	982.30	1,365.50	1,681.70	1,982.40	167,396.90
Transmission Link from local guadaupe 2 to Almaden and Guadalupe Ponds	6,371.30	385.6	0.00	2,706.40	1,644.20	3,113.80	2,701.40	5,176.90	6,079.70	6,259.10	401,725.80
Transmission Link from local lg creek diversion to Los Gatos Ck rechar	0.00	267.10	5,519.40	3,392.00	377.80	496.00	50.20	496.00	1,914.80	992.00	252,378.90
Transmission Link from local lg pond diversion to Los Gatos Ponds	4,757.30	3,799.20	0.00	8,573.50	4,500.60	4,282.30	3,208.00	5,339.00	9,579.60	11,263.40	934,424.50
Transmission Link from local lower Llagas recharge to Lower Llagas Rec	2,980.30	294.6	2,415.60	2,473.20	383	484.2	1,466.60	4,340.00	6,435.90	4,023.90	335,975.70
Transmission Link from local penitencia creek to Penitencia Creek Rech	1,335.80	164	0	427	334	484	227	410	747	1,198.00	60,247.80
Transmission Link from local regnart creek to Regnart Creek Recharge	276.7	14	343	15	20	4	1	73.3	189.4	451.7	16,972.00
Transmission Link from local release 2 ford ponds to Ford Pond Recharg	0.00	0.00	0.00	0.00	0.00	0	0	0.00	0.00	0.00	0.00
Transmission Link from local release 2 upper coyote to Coyote Upper Re	15,284.40	1,227.60	11,947.30	15,768.70	3,464.00	514.3	0	6,550.30	7,309.00	15,768.70	1,092,664.80
Transmission Link from local rodeo creek to Rodeo Creek Recharge	67.6	2	126.00	2	3	0	0	16	50	178.7	5,041.90
Transmission Link from local ross creek recharge to Ross Creek Recharg	863.8	290	1,127.80	487	421	364	364	517	633	888	57,805.70
Transmission Link from local san tomoa creek to San Tomas Creek Rechar	691.4	188.5	762.2	299.1	271.5	170.3	233.9	311.8	388.5	771.9	48,727.50
Transmission Link from local saratoga div to NC IWRP recharge	0.00	0	0.00	0.00	0	0.00	0	0	0.00	0.00	0.00
Transmission Link from local saratogo creek to Saratoga Creek Recharge	2,683.40	648	3,319.80	1,133.00	593	1,203.20	981	958.2	1,846.00	3,512.20	184,700.70
Transmission Link from local silver creek to Silver Creek Recharge	722.40	85	689.90	715.00	331.00	93.00	262.00	58.00	103.00	730.00	53,013.80
Transmission Link from local stevens creek to Stevens Creek Recharge	2,561.20	597.7	3,449.60	3,650.00	2,422.40	1,437.40	1,362.20	2,691.50	3,631.60	3,650.00	272,455.60
Transmission Link from local thompson creek to Thompson Creek Recharge	750.7	47	1,029.90	617	362	52	178	32	109	927	54,069.80
Transmission Link from local wildcat creek to Wildcat Creek Recharge	443.50	122.50	495.50	194.40	176.50	110.70	152.10	202.70	252.50	484.10	30,477.50
Sum	82,523.60	13,827.50	64,408.00	70,702.20	29,931.30	28,426.20	24,061.80	50,857.50	67,542.90	86,332.20	6,636,333.40
demand_reduction_fctr	0.00	0.00	0.00	0.00	0.00	0.00	-0.05	-0.38	-0.50	0.00	

Strategy B14

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Groundwater Storage (Acre-foot)	Groundwater	Groundwater	Groundwater S	Groundwater S	Groundwater S	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater Storage (Acre-foo	
Coyote Subbasin	19795.5	7544.7	22720.0	22849.9	10718.7	0.0	0.0	24.4	1350.1	23651.6	
LlagasSubbasin	80063.0	112730.3	145172.2	139031.0	121798.6	107652.7	96203.7	98584.3	107184.6	141727.9	
North County Santa Clara Sbb	278073.4	191929.8	328379.8	296688.1	214108.4	138481.8	22075.3	36004.7	93994.9	326229.6	
Sum	377931.9	312204.8	496272.0	458569.0	346625.8	246134.4	118279.0	134613.4	202529.6	491609.1	
Reservoir Storage Volume (Acre-foot)	Reservoir Stor	Reservoir Stor	Reservoir Stora	Reservoir Stora	Reservoir Stora	Reservoir Stor	Reservoir Stor	Reservoir Stor	Reservoir Stor	Reservoir Storage Volume (Acr	
Almaden Reservoir	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	351.0	
Anderson Reservoir	22000.0	21507.8	69864.0	27734.6	21939.3	21954.3	21550.4	22000.0	22000.0	49560.7	
Calero Reservoir	1000.0	1000.0	23200.0	8820.5	1000.0	1000.0	1000.0	1000.0	2236.0	23200.0	
Chesbro Reservoir	500.0	500.0	4586.0	500.0	451.2	451.7	500.0	500.0	1293.4	4586.0	
Coyote Reservoir	1000.0	977.6	5200.0	5200.0	997.2	993.7	910.4	1000.0	1000.0	5200.0	
Guadalupe Reservoir	200.0	168.9	1188.0	200.0	200.0	200.0	200.0	200.0	200.0	1188.0	
Lexington Reservoir	1475.3	685.8	16000.0	4206.6	1251.2	527.7	212.2	1823.7	3995.4	9395.4	
Pacheco Reservoir	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	
Stevens Creek Reservoir	31.0	181.5	2368.0	583.6	31.0	31.0	31.0	31.0	1609.5	2368.0	
Uvas Reservoir	2703.9	2824.1	5987.7	997.6	1104.1	557.6	500.0	3963.6	6258.0	6258.0	
cvp caryover	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
cvp overflow not used	0.0	12478.2	139758.5	139758.5	139758.5	139758.5	139758.5	139758.5	139758.5	139758.5	
semitropic reservoir	242493.3	9398.8	52342.9	37593.1	29.7	0.0	0.0	0.0	0.0	81086.1	
swp caryyover	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
swp overflow not used	0.0	0.0	44864.0	44864.0	44864.0	44864.0	44864.0	44864.0	44864.0	44864.0	
Sum	276603.5	54922.8	370559.1	275658.4	216826.3	215538.4	214726.5	220340.8	228414.6	372815.7	
Groundwater Natural Recharge (Acre-foot)	Groundwater	Groundwater	Groundwater N	Groundwater N	Groundwater N	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater N	Groundwater N
Coyote Subbasin	2535.0	1326.9	5335.0	1838.8	1544.9	1101.9	1457.8	2541.2	3273.6	2141.8	183393.1
LlagasSubbasin	24664.6	19659.9	33521.4	20971.2	20239.6	19330.3	21198.0	22272.2	21962.7	22365.9	1888278.1
North County Santa Clara Sbb	39177.8	26853.8	56312.9	30423.5	26962.8	27176.6	25998.0	24763.5	29247.2	34205.1	2881697.9
Sum	66377.4	47840.6	95169.3	53233.5	48747.3	47608.8	48653.8	49576.9	54483.5	58712.8	4953369.1
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission Li	Transmission Li	Transmission Li	Transmission L	Transmission L	Transmission L	Transmission L	Transmission Li	Transmission Li
Transmission Link from lake elsman to sjw west to SJ Water Company	12613.8	1362.0	14943.8	3997.9	3455.9	6503.9	3720.9	6431.9	3455.9	7405.9	815457.0
Transmission Link from stanford water to Stanford Moffett Field Ames	823.0	64.0	692.0	187.0	160.0	303.0	174.0	296.0	160.0	681.0	51733.2
Sum	13436.8	1426.0	15635.8	4184.9	3615.9	6806.9	3894.9	6727.9	3615.9	8086.9	867190.3
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission Li	Transmission Li	Transmission Li	Transmission L	Transmission L	Transmission L	Transmission L	Transmission Li	Transmission Li
Transmission Link from SCRWA to Morgan Hill to Morgan Hill Service Are	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from deliver recycled to gilroy to Gilroy Service Ar	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	131196.6
Transmission Link from hecker pass recycled to Gilroy Service Area	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from morgan hill recycled to Morgan Hill Service Are	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from recycle pa to palo alto to Palo Alto Service Ar	1055.7	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	69136.2
Transmission Link from recycle sv to sunnyvale to Sunnyvale Service Ar	1900.0	2400.0	2400.0	2400.0	2400.0	2400.0	2400.0	2400.0	2400.0	2400.0	196297.1
Transmission Link from recycled 1 to Llagas Ag	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	98400.0
Transmission Link from recycled SB to SJWC to SJ Water Company	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	3286.5	85.5	3041.7	243114.7
Transmission Link from recycled SB to santa clara to Santa Clara Servi	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	383760.0
Transmission Link from recycled pa to mountain view to Mountain View S	994.2	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	98961.3

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Transmission Link from recycled sb to milpitas to Milpitas Service Are	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	172692.0
Transmission Link from recycled sb to sj muni north to SJ Muni North	9500.4	9839.7	9839.7	9839.7	9839.7	9839.7	9839.7	9304.8	8012.7	9839.7	804154.2
Transmission Link from recycled sb to sjMuni edenvale to SJ Muni servi	4071.6	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	306387.9
Sum	30149.6	30649.5	30649.5	30649.5	30649.5	30649.5	30649.5	30359.5	25866.4	30649.5	2504100.1
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission Li	Transmission Li	Transmission Li	Transmission L	Transmission L	Transmission L	Transmission L	Transmission Li	Transmission Li
Transmission Link from hh to PHills to Purisma Hills Service Area	1828.0	1828.0	1828.0	1828.0	1828.0	1516.0	1516.0	1516.0	1516.0	1828.0	147200.7
Transmission Link from hh to Sunnyvale to Sunnyvale Service Area	13249.0	13249.0	13249.0	13249.0	13249.0	10988.0	10988.0	10988.0	10982.8	13249.0	1066877.7
Transmission Link from hh to milpitas service area to Milpitas Service	8451.0	8451.0	8451.0	8451.0	8451.0	7008.8	7008.8	7008.8	6890.2	8451.0	680402.7
Transmission Link from hh to moffett ames to Stanford Moffett Field Am	3395.0	3395.0	3395.0	3395.0	3395.0	2815.6	2815.6	2815.6	2815.6	3395.0	273384.2
Transmission Link from hh to mountain view to Mountain View Service Ar	14487.4	14407.8	14407.8	14407.8	14407.8	12120.0	12101.1	9259.3	7165.5	14407.8	1146105.4
Transmission Link from hh to palo alto to Palo Alto Service Area	14295.5	14397.2	14397.2	14397.2	14397.2	12121.7	12108.8	9352.6	7314.0	14397.2	1145438.7
Transmission Link from hh to santa clara to Santa Clara Service Area	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from hh to sj muni n to SJ Muni North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sum	55705.9	55728.0	55728.0	55728.0	55728.0	46570.3	46538.4	40940.4	36684.2	55728.0	4459409.4
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission Li	Transmission Li	Transmission Li	Transmission L	Transmission L	Transmission L	Transmission L	Transmission Li	Transmission Li
Transmission Link from local stevens creek flood release to Tributary	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from local uvas flood release to Tributary Inflow 5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from release from anderson to cvp pl to Anderson PL	420.5	3555.5	59949.9	12563.0	4366.6	344.8	442.7	4730.9	7088.6	971.2	676544.7
Transmission Link from release from calero to cvp pl to Calero PL rele	0.0	922.3	0.0	6318.5	922.3	0.0	0.0	0.0	248.7	922.3	45584.9
Transmission Link from release from pacheco to Tributary Inflow 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sum	420.5	4477.8	59949.9	18881.5	5288.9	344.8	442.7	4730.9	7337.3	1893.5	722129.6
Streamflow (below node or reach listed) (All Rivers) (Acre-foot)	Streamflow (b	Streamflow (b	Streamflow (be	Streamflow (be	Streamflow (be	Streamflow (b	Streamflow (b	Streamflow (b	Streamflow (b	Streamflow (be	Streamflow (be
SWP 1 Supply 0 \ Headflow	61999.1	10999.8	96998.6	29999.6	29999.6	56999.2	21999.7	27999.6	23999.6	63999.1	4939927.4
cvp 0 source supply 0 \ Headflow	121128.4	69175.9	152497.8	94555.5	64999.0	100323.6	64999.0	75023.6	81706.6	108114.6	8991576.1
Demand Site Inflows and Outflows (Demand Site: NC Coyote Pond Recharge) (	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from IPR Coyote	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Inflow from Lower Coyote Creek	10233.1	930.0	10950.0	10950.0	3784.0	303.6	782.0	4567.9	4705.1	10950.0	802874.5
Inflow from cvp 3 santa clara conduit	390.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1193.9
Outflow to North County Santa Clara Sbb	-10623.5	-930.0	-10950.0	-10950.0	-3784.0	-303.6	-782.0	-4567.9	-4705.1	-10950.0	-804068.4
Sum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Demand Site Inflows and Outflows (Demand Site: Ford Pond Recharge) (Acre-f	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from IPR Coyote	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Inflow from Lower Coyote Creek	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Outflow to North County Santa Clara Sbb	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Demand Site Inflows and Outflows (Demand Site: Los Gatos Ponds) (Acre-foot	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from IPR LG Ponds	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Inflow from Los Gatos Creek	4757.3	3731.7	2021.2	9412.1	4330.5	4234.7	3192.7	5334.3	9578.7	11023.0	942877.9
Inflow from SWP 3 central pipeline	0.0	211.9	0.0	30.4	655.2	0.0	0.0	0.0	0.0	4758.5	62774.8
Inflow from cvp 7 central pl	16843.6	336.9	0.0	1445.9	1159.6	1249.3	0.0	0.0	0.0	6013.6	267544.3

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Outflow to North County Santa Clara Sbb	-21600.9	-4280.4	-2021.2	-10888.4	-6145.3	-5484.0	-3192.7	-5334.3	-9578.7	-21795.2	-1273197.0
Sum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Demand Site Inflows and Outflows (Demand Site: Almaden and Guadalupe Po	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from Guadalupe Creek	6,371.30	5,169.20	682.00	7,348.00	4,590.40	3,142.20	2,705.70	5,886.20	7,504.90	8,030.00	494,304.00
Inflow from IPR Guadalupe	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inflow from SWP 4 almaden valley pipeline	126.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	126.80
Inflow from cvp 5 almaden valley pl	262.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	262.10
Outflow to North County Santa Clara Sbb	-6,760.20	-5,169.20	-682.00	-7,348.00	-4,590.40	-3,142.20	-2,705.70	-5,886.20	-7,504.90	-8,030.00	-494,692.90
Sum	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demand Site Inflows and Outflows (Demand Site: Kooser) (Acre-foot)	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from IPR Guadalupe	0.00	0	0.00	0.00	0	0	0	0	0	0.00	0.00
Inflow from SWP 4 almaden valley pipeline	47.00	49.6	49.60	387.20	0	0	0	0	0	534.40	14,007.20
Inflow from cvp 5 almaden valley pl	245.8	49.6	49.6	828.8	148.8	0	0	0	103.8	534.40	42,273.70
Outflow to North County Santa Clara Sbb	-292.80	-99.2	-99.20	-1,216.00	-148.8	0	0	0	-103.8	-1,068.80	-56,280.90
Sum	0.00	0	0.00	0.00	0	0	0	0	0	0.00	0.00
Demand Site Inflows and Outflows (Demand Site: Los Capitancillos Ponds) (Ac	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from Guadalupe Creek	2,141.90	23	2,846.60	1,391.00	1,011.30	1,142.60	983.90	1,313.00	1,915.00	2,047.40	175,424.80
Inflow from IPR Guadalupe	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inflow from SWP 4 almaden valley pipeline	46.10	82.7	0.00	412.50	0	0.00	0	0.00	0.00	256.60	8,726.60
Inflow from cvp 5 almaden valley pl	95.30	82.7	0.00	933.00	0.00	0.00	0.00	0.00	0.00	325.30	18,625.70
Outflow to North County Santa Clara Sbb	-2,283.30	-188.3	-2,846.60	-2,736.40	-1,011.30	-1,142.60	-983.90	-1,313.00	-1,915.00	-2,629.30	-202,777.10
Sum	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demand Site Inflows and Outflows (Demand Site: Overfelt Ponds) (Acre-foot)	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from IPR Penitencia	0	0	0.00	0	0	0	0	0	0	0	0.00
Inflow from Penitencia Creek	0	0	0.00	0.00	0	0	0	0	0	0	0.00
Inflow from SWP 2 SBA pipeline	450.7	124	1,460.00	1,460.00	124.00	0	0	0	0	1,441.30	89,733.40
Outflow to North County Santa Clara Sbb	-450.7	-124	-1,460.00	-1,460.00	-124.00	0	0	0	0	-1,441.30	-89,733.40
Sum	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Penitencia Ponds) (Acre-foo	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from IPR Penitencia	0	0	0.00	0	0	0	0	0	0	0	0.00
Inflow from Penitencia Creek	0	0	0.00	0.00	0.00	0	0	0	0	0	0.00
Inflow from SWP 2 SBA pipeline	766.20	210.80	2,482.00	2,482.00	210.80	0.00	0	0	0	2,450.10	152,546.70
Outflow to North County Santa Clara Sbb	-766.20	-210.80	-2,482.00	-2,482.00	-210.80	0.00	0	0	0	-2,450.10	-152,546.70
Sum	0	0	0	0	0	0	0	0	0	0	0
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission Li	Transmission Li	Transmission Li	Transmission L	Transmission L	Transmission L	Transmission L	Transmission Li	Transmission Li
Transmission Link from Uvas release to Llagas recharge to Church Pond	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from anderson release to butterfield to Butterfield	0.00	0	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00
Transmission Link from anderson release to madronne to Madrone Ponds	7,888.80	426.30	1,677.50	3,368.80	426.30	0.00	0	1,000.00	1,000.00	3,368.80	259,759.50
Transmission Link from lex pl 1 to Rinconanda WTP	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 10 to NC IWRP recharge	0	0	0	0	0	0	0	0	0	0	0

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Transmission Link from lex pl 2 to San Tomas Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 3 to Wildcat Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 4 to Saratoga Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 5 to Rodeo Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 6 to Calabazas Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 7 to Regnart Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 8 to Mcclellan Pond recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 9 to Stevens Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local 2 coyote pond recharge to Coyote Pond Rec	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transmission Link from local 2 guad creek to Guadalupe creek	5,618.30	4,558.30	7,081.00	7,081.00	4,047.90	2,770.90	2,385.90	5,190.50	6,618.00	7,081.00	550,326.90
Transmission Link from local 2 lower coyote recharge to lower coyote r	1,460.00	338.90	1,460.00	1,460.00	1,085.20	429.50	574.70	856	1,092.00	1,460.00	115,299.70
Transmission Link from local 2 overfelt to Overfelt Ponds	0	0	0.00	0	0	0	0	0	0	0	0.00
Transmission Link from local 2 pen ponds to Penitencia Ponds	0	0	0.00	0	0	0	0	0	0	0	0.00
Transmission Link from local 2 upper coyote to NC Upper Coyote Recharg	171.7	34.5	12.4	159.3	133.9	45.9	64.3	111.3	134.9	171.7	10,847.20
Transmission Link from local Chesbro release to recharge to Church Pon	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transmission Link from local Uvas release to recharge to Uvas Recharge	10,117.80	1,787.30	3,381.80	6,791.40	4,206.90	9,556.80	6,995.30	8,713.50	10,117.80	6,791.40	613,595.20
Transmission Link from local alamitos creek to Alamitos Creek recharge	1,106.50	347.30	2,168.60	1,142.50	818.80	857.00	737.9	1,086.00	1,482.50	1,452.00	139,981.80
Transmission Link from local anderson 2 coyote ponds to NC Coyote Pond	10,233.10	930.00	10,950.00	10,950.00	3,784.00	303.60	782.00	4,567.90	4,705.10	10,950.00	802,874.50
Transmission Link from local anderson release to main ave ponds to Mai	2,122.80	114.7	451.4	906.50	114.7	0.00	0	500	500	1,118.20	83,222.20
Transmission Link from local anderson res to Church Pond and Llagas Re	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local anderson res to Lower Llagas Recharge	0.00	0	0.00	0	0	0	0	0	0.00	0.00	0.00
Transmission Link from local calabasas creek to Calabazas Creek Rechar	1,149.00	236	1,474.40	141	353	200	50	374.4	1,015.20	1,869.00	72,386.20
Transmission Link from local calero creek to Calero Creek recharge	724.00	587.1	912.50	912.50	521.6	357.10	307.50	668.90	852.80	912.50	70,908.60
Transmission Link from local guadalupe 1 to Los Capitancillos Ponds	2,141.90	23	2,846.60	1,391.00	1,011.30	1,142.60	983.90	1,313.00	1,915.00	2,047.40	175,424.80
Transmission Link from local guadaupe 2 to Almaden and Guadalupe Ponds	6,371.30	5,169.20	682.00	7,348.00	4,590.40	3,142.20	2,705.70	5,886.20	7,504.90	8,030.00	494,304.00
Transmission Link from local lg creek diversion to Los Gatos Ck rechar	0.00	263.10	5,840.00	2,895.40	350.20	496.00	48.00	496.00	1,914.50	992.00	248,986.60
Transmission Link from local lg pond diversion to Los Gatos Ponds	4,757.30	3,731.70	2,021.20	9,412.10	4,330.50	4,234.70	3,192.70	5,334.30	9,578.70	11,023.00	942,877.90
Transmission Link from local lower Llagas recharge to Lower Llagas Rec	2,980.30	294.6	2,415.60	1,912.10	368.2	498.9	1,466.60	4,340.00	6,435.90	4,023.90	340,229.90
Transmission Link from local penitencia creek to Penitencia Creek Rech	1,335.80	164	186	475	334	484	227	410	747	1,198.00	60,692.70
Transmission Link from local regnart creek to Regnart Creek Recharge	276.7	14	366.3	15	20	4	1	73.3	189.4	451.7	16,995.90
Transmission Link from local release 2 ford ponds to Ford Pond Recharg	0.00	0.00	0.00	0.00	0.00	0	0	0.00	0.00	0.00	0.00
Transmission Link from local release 2 upper coyote to Coyote Upper Re	15,284.40	1,227.60	10,228.70	15,768.70	2,989.80	514.30	0	6,550.30	7,309.00	15,768.70	1,092,846.60
Transmission Link from local rodeo creek to Rodeo Creek Recharge	67.6	2	126.00	2	3	0	0	16	50	178.7	5,041.90
Transmission Link from local ross creek recharge to Ross Creek Recharg	863.8	290	1,234.00	487	421	364	364	517	633	888	57,927.10
Transmission Link from local san tomoa creek to San Tomas Creek Rechar	691.4	188.5	822.4	299.1	271.5	170.3	233.9	311.8	388.5	771.9	48,802.20
Transmission Link from local saratoga div to NC IWRP recharge	0.00	0	0.00	0.00	0	0.00	0	0	0.00	0.00	0.00
Transmission Link from local saratogo creek to Saratoga Creek Recharge	2,683.40	648	3,604.40	1,133.00	593	1,203.20	981	958.2	1,846.00	3,512.20	185,054.60
Transmission Link from local silver creek to Silver Creek Recharge	722.40	85	730.00	715.00	331.00	93.00	262.00	58.00	103.00	730.00	53,063.70
Transmission Link from local stevens creek to Stevens Creek Recharge	2,561.20	599.6	3,650.00	3,650.00	2,484.30	1,437.40	1,362.20	2,691.50	3,631.60	3,650.00	273,366.80
Transmission Link from local thompson creek to Thompson Creek Recharge	750.7	47	1,090.00	617	362	52	178	32	109	927	54,144.60
Transmission Link from local wildcat creek to Wildcat Creek Recharge	443.50	122.50	534.50	194.40	176.50	110.70	152.10	202.70	252.50	484.10	30,526.10
Sum	82,523.60	22,230.00	65,947.30	79,227.80	34,129.00	28,468.10	24,055.50	52,258.70	70,126.40	89,851.10	6,799,487.20
demand_reduction_fctr	0.00	0.00	0.00	0.00	0.00	0.00	-0.10	-0.38	-0.50	0.00	

Strategy B16

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Groundwater Storage (Acre-foot)	Groundwater	Groundwater	Groundwater S	Groundwater S	Groundwater S	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater Storage (Acre-fo	
Coyote Subbasin	19795.5	14407.0	22581.0	21503.1	17123.3	17328.0	2119.8	0.0	1252.0	22115.3	
LlagasSubbasin	80063.0	108971.3	143608.6	136804.2	123467.4	116859.9	102987.7	102339.3	107910.6	141410.1	
North County Santa Clara Sbb	278073.4	215081.5	334108.7	295334.3	253131.6	195132.4	42475.6	13211.6	43445.7	324572.1	
Sum	377931.9	338459.8	500298.3	453641.6	393722.3	329320.3	147583.1	115550.9	152608.4	488097.4	
Reservoir Storage Volume (Acre-foot)	Reservoir Stor	Reservoir Stor	Reservoir Stora	Reservoir Stora	Reservoir Stora	Reservoir Stor	Reservoir Stor	Reservoir Stor	Reservoir Stor	Reservoir Storage Volume (Acr	
Almaden Reservoir	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	351.0	
Anderson Reservoir	22000.0	55689.6	171300.0	132417.1	63352.4	22000.0	22000.0	22000.0	22000.0	149162.0	
Calero Reservoir	1000.0	693.5	5600.0	1000.0	932.6	1000.0	1000.0	993.9	2233.3	4457.5	
Chesbro Reservoir	500.0	500.0	4586.0	500.0	437.5	451.7	500.0	500.0	1293.4	4586.0	
Coyote Reservoir	1000.0	1140.3	5200.0	5200.0	1032.4	994.2	926.3	1000.0	1000.0	5200.0	
Guadalupe Reservoir	200.0	168.9	1188.0	200.0	200.0	200.0	200.0	200.0	200.0	1188.0	
Lexington Reservoir	1475.3	643.6	16000.0	4895.1	1445.7	588.7	229.4	1829.1	3997.5	9395.4	
Pacheco Reservoir	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	
Stevens Creek Reservoir	31.0	181.5	2368.0	583.6	31.0	31.0	31.0	31.0	1609.5	2368.0	
Uvas Reservoir	2703.9	2824.1	5987.7	997.6	1104.1	557.6	500.0	3963.6	6258.0	6258.0	
cvp caryover	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
cvp overflow not used	0.0	0.0	131061.7	131061.7	131061.7	131061.7	131061.7	131061.7	131061.7	131061.7	
semitropic reservoir	242493.3	0.0	53905.5	36503.9	10.3	0.0	0.0	0.0	0.0	69404.2	
swp caryyover	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
swp overflow not used	0.0	0.0	45499.8	45499.8	45499.8	45499.8	45499.8	45499.8	45499.8	45499.8	
Sum	276603.5	67041.6	447896.6	364058.6	250307.4	207584.7	207148.2	212279.1	220353.1	433931.6	
Groundwater Natural Recharge (Acre-foot)	Groundwater	Groundwater	Groundwater N	Groundwater N	Groundwater N	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater N	Groundwater N
Coyote Subbasin	2535.0	1326.9	5335.0	1838.8	1544.9	1101.9	1457.8	2541.2	3273.6	2141.8	183393.1
LlagasSubbasin	24664.6	19659.9	33521.4	20971.2	20239.6	19330.3	21198.0	22272.2	21962.7	22365.9	1888278.1
North County Santa Clara Sbb	39177.8	26853.8	56312.9	30423.5	26962.8	27176.6	25998.0	24763.5	29247.2	34205.1	2881697.9
Sum	66377.4	47840.6	95169.3	53233.5	48747.3	47608.8	48653.8	49576.9	54483.5	58712.8	4953369.1
Transmission Link Flow (Acre-foot)	Transmission	Transmission	Transmission Li	Transmission Li	Transmission Li	Transmission	Transmission	Transmission	Transmission	Transmission Li	Transmission Li
Transmission Link from lake elsman to sjw west to SJ Water Company	12613.8	1362.0	14943.8	3997.9	3455.9	6503.9	3720.9	6431.9	3455.9	7405.9	815457.0
Transmission Link from stanford water to Stanford Moffett Field Ames	823.0	64.0	692.0	187.0	160.0	303.0	174.0	296.0	160.0	681.0	51733.2
Sum	13436.8	1426.0	15635.8	4184.9	3615.9	6806.9	3894.9	6727.9	3615.9	8086.9	867190.3
Transmission Link Flow (Acre-foot)	Transmission	Transmission	Transmission Li	Transmission Li	Transmission Li	Transmission	Transmission	Transmission	Transmission	Transmission Li	Transmission Li
Transmission Link from SCRWA to Morgan Hill to Morgan Hill Service Are	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from deliver recycled to gilroy to Gilroy Service Ar	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	131196.6
Transmission Link from hecker pass recycled to Gilroy Service Area	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from morgan hill recycled to Morgan Hill Service Are	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from recycle pa to palo alto to Palo Alto Service Ar	1055.8	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	69136.2
Transmission Link from recycle sv to sunnyvale to Sunnyvale Service Ar	1900.0	2400.0	2400.0	2400.0	2400.0	2400.0	2400.0	2400.0	2400.0	2400.0	196297.1
Transmission Link from recycled 1 to Llagas Ag	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	98400.0
Transmission Link from recycled SB to SJWC to SJ Water Company	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	3294.4	3041.7	246065.0
Transmission Link from recycled SB to santa clara to Santa Clara Servi	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	383760.0
Transmission Link from recycled pa to mountain view to Mountain View S	994.2	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	98961.3

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	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Transmission Link from recycled sb to milpitas to Milpitas Service Are	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	172692.0
Transmission Link from recycled sb to sj muni north to SJ Muni North	9500.4	9839.7	9839.7	9839.7	9839.7	9839.7	9839.7	9839.7	9304.8	9839.7	805981.2
Transmission Link from recycled sb to sjMuni edenvale to SJ Muni servi	4071.6	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	306387.9
Sum	30149.6	30649.5	30649.5	30649.5	30649.5	30649.5	30649.5	30649.5	30367.4	30649.5	2508877.4
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission Li	Transmission Li	Transmission Li	Transmission L	Transmission L	Transmission L	Transmission L	Transmission Li	Transmission Li
Transmission Link from hh to PHills to Purisma Hills Service Area	1828.0	1828.0	1828.0	1828.0	1828.0	1516.0	1516.0	1516.0	1516.0	1828.0	147200.7
Transmission Link from hh to Sunnyvale to Sunnyvale Service Area	13249.0	13249.0	13249.0	13249.0	13249.0	10988.0	10988.0	10988.0	10988.0	13249.0	1066882.9
Transmission Link from hh to milpitas service area to Milpitas Service	8451.0	8451.0	8451.0	8451.0	8451.0	7008.8	7008.8	7008.8	7008.8	8451.0	680521.4
Transmission Link from hh to moffett ames to Stanford Moffett Field Am	3395.0	3395.0	3395.0	3395.0	3395.0	2815.6	2815.6	2815.6	2815.6	3395.0	273384.2
Transmission Link from hh to mountain view to Mountain View Service Ar	14487.4	14407.8	14407.8	14407.8	14407.8	12120.0	12120.0	11161.0	9259.3	14407.8	1148738.1
Transmission Link from hh to palo alto to Palo Alto Service Area	14295.5	14397.2	14397.2	14397.2	14397.2	12121.7	12121.7	11184.9	9352.6	14397.2	1147942.7
Transmission Link from hh to santa clara to Santa Clara Service Area	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from hh to sj muni n to SJ Muni North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sum	55705.9	55728.0	55728.0	55728.0	55728.0	46570.3	46570.3	44674.5	40940.4	55728.0	4464670.0
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission Li	Transmission Li	Transmission Li	Transmission L	Transmission L	Transmission L	Transmission L	Transmission Li	Transmission Li
Transmission Link from local stevens creek flood release to Tributary	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from local uvas flood release to Tributary Inflow 5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from release from anderson to cvp pl to Anderson PL	420.5	62895.0	65195.0	25885.5	48072.0	7059.6	1420.0	5174.5	7451.7	24000.0	1782929.5
Transmission Link from release from calero to cvp pl to Calero PL rele	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from release from pacheco to Tributary Inflow 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sum	420.5	62895.0	65195.0	25885.5	48072.0	7059.6	1420.0	5174.5	7451.7	24000.0	1782929.5
Streamflow (below node or reach listed) (All Rivers) (Acre-foot)	Streamflow (b	Streamflow (b	Streamflow (be	Streamflow (be	Streamflow (be	Streamflow (b	Streamflow (b	Streamflow (b	Streamflow (b	Streamflow (be	Streamflow (be
SWP 1 Supply 0 \ Headflow	61999.1	10999.8	96998.6	29999.6	29999.6	56999.2	21999.7	27999.6	23999.6	63999.1	4939927.4
cvp 0 source supply 0 \ Headflow	121128.4	69175.9	152497.8	94555.5	64999.0	100323.6	64999.0	75023.6	81706.6	108114.6	8991576.1
Demand Site Inflows and Outflows (Demand Site: NC Coyote Pond Recharge) (	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from IPR Coyote	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Inflow from Lower Coyote Creek	10233.1	6030.3	10217.5	10950.0	9553.9	10073.6	3024.7	5107.8	5530.5	10950.0	844225.6
Inflow from cvp 3 santa clara conduit	390.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	390.4
Outflow to North County Santa Clara Sbb	-10623.5	-6030.3	-10217.5	-10950.0	-9553.9	-10073.6	-3024.7	-5107.8	-5530.5	-10950.0	-844616.0
Sum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Demand Site Inflows and Outflows (Demand Site: Ford Pond Recharge) (Acre-f	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from IPR Coyote	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Inflow from Lower Coyote Creek	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Outflow to North County Santa Clara Sbb	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Demand Site Inflows and Outflows (Demand Site: Los Gatos Ponds) (Acre-foot	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from IPR LG Ponds	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Inflow from Los Gatos Creek	4757.3	3646.4	0.0	9877.8	4740.4	4341.4	3231.0	5346.1	9581.1	11023.0	968849.7
Inflow from SWP 3 central pipeline	0.0	531.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4758.5	66280.6
Inflow from cvp 7 central pl	16843.6	4089.9	0.0	1010.6	7158.6	1217.5	0.0	0.0	0.0	6013.6	266623.4

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Outflow to North County Santa Clara Sbb	-21600.9	-8267.4	0.0	-10888.4	-11899.0	-5558.9	-3231.0	-5346.1	-9581.1	-21795.2	-1301753.7
Sum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Demand Site Inflows and Outflows (Demand Site: Almaden and Guadalupe Po	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from Guadalupe Creek	6,371.30	385.6	0.00	3,178.80	1,644.20	3,113.80	2,701.40	5,176.90	6,079.70	6,259.10	414,674.20
Inflow from IPR Guadalupe	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inflow from SWP 4 almaden valley pipeline	126.80	66.80	0.00	894.70	0.00	0.00	0.00	0.00	0.00	447.30	9,154.00
Inflow from cvp 5 almaden valley pl	262.10	748.50	0.00	2,605.60	722.60	0.00	0.00	0.00	0.00	592.40	28,707.20
Outflow to North County Santa Clara Sbb	-6,760.20	-1,200.90	0.00	-6,679.10	-2,366.90	-3,113.80	-2,701.40	-5,176.90	-6,079.70	-7,298.90	-452,535.50
Sum	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demand Site Inflows and Outflows (Demand Site: Kooser) (Acre-foot)	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from IPR Guadalupe	0.00	0	0.00	0.00	0	0	0	0	0	0.00	0.00
Inflow from SWP 4 almaden valley pipeline	47.00	17.5	0.00	387.20	0	0	0	0	0	486.40	14,284.10
Inflow from cvp 5 almaden valley pl	245.8	166.80	0	828.8	369.2	0	0	0	103.8	533.30	43,608.80
Outflow to North County Santa Clara Sbb	-292.80	-184.30	0.00	-1,216.00	-369.20	0	0	0	-103.8	-1,019.70	-57,892.90
Sum	0.00	0	0.00	0.00	0	0	0	0	0	0.00	0.00
Demand Site Inflows and Outflows (Demand Site: Los Capitancillos Ponds) (Ac	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from Guadalupe Creek	2,141.90	23	2,651.20	1,149.70	597.9	1,132.30	982.30	1,365.50	1,681.70	1,982.40	166,994.80
Inflow from IPR Guadalupe	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inflow from SWP 4 almaden valley pipeline	46.10	29.1	0.00	412.50	0	0.00	0	0.00	0.00	176.60	8,912.30
Inflow from cvp 5 almaden valley pl	95.30	278.00	0.00	1,112.80	262.80	0.00	0.00	0.00	0.00	314.00	20,586.00
Outflow to North County Santa Clara Sbb	-2,283.30	-330.10	-2,651.20	-2,675.00	-860.70	-1,132.30	-982.30	-1,365.50	-1,681.70	-2,473.00	-196,493.20
Sum	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demand Site Inflows and Outflows (Demand Site: Overfelt Ponds) (Acre-foot)	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from IPR Penitencia	0	0	0.00	0	0	0	0	0	0	0	0.00
Inflow from Penitencia Creek	0	0	0.00	0.00	0	0	0	0	0	0	0.00
Inflow from SWP 2 SBA pipeline	450.7	449.60	1,460.00	1,460.00	1,304.70	0.00	0	0	0.00	1,460.00	92,672.20
Outflow to North County Santa Clara Sbb	-450.7	-449.60	-1,460.00	-1,460.00	-1,304.70	0.00	0	0	0.00	-1,460.00	-92,672.20
Sum	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Penitencia Ponds) (Acre-foo	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from IPR Penitencia	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inflow from Penitencia Creek	0	0	0.00	0.00	0.00	0	0	0	0	0	0.00
Inflow from SWP 2 SBA pipeline	766.20	764.3	2,482.00	2,482.00	2,217.90	0	0	0	0	2,482.00	157,542.70
Outflow to North County Santa Clara Sbb	-766.20	-764.30	-2,482.00	-2,482.00	-2,217.90	0.00	0.00	0.00	0.00	-2,482.00	-157,542.70
Sum	0	0	0	0	0	0	0	0	0	0	0
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission Li	Transmission Li	Transmission Li	Transmission L	Transmission L	Transmission L	Transmission L	Transmission Li	Transmission Li
Transmission Link from Uvas release to Llagas recharge to Church Pond	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from anderson release to butterfield to Butterfield	0.00	0	0.00	0.00	0	0	0	0.00	0.00	0.00	0.00
Transmission Link from anderson release to madronne to Madrone Ponds	7,888.80	1,612.40	1,677.50	3,368.80	3,062.90	5,262.80	0	1,000.00	1,000.00	3,368.80	267,416.70
Transmission Link from lex pl 1 to Rinconanda WTP	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transmission Link from lex pl 10 to NC IWRP recharge	0	0	0	0	0	0	0	0	0	0	0.00

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	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Transmission Link from lex pl 2 to San Tomas Creek Recharge	0	0	0	0	0	0	0	0	0	0	0.00
Transmission Link from lex pl 3 to Wildcat Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 4 to Saratoga Creek Recharge	0	0	0	0	0	0	0	0	0	0	0.00
Transmission Link from lex pl 5 to Rodeo Creek Recharge	0	0	0	0	0	0	0	0	0	0	0.00
Transmission Link from lex pl 6 to Calabazas Creek Recharge	0	0	0	0	0	0	0	0	0	0	0.00
Transmission Link from lex pl 7 to Regnart Creek Recharge	0	0	0	0	0	0	0	0	0	0	0.00
Transmission Link from lex pl 8 to Mcclellan Pond recharge	0	0	0.00	0	0	0	0	0	0	0	0.00
Transmission Link from lex pl 9 to Stevens Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local 2 coyote pond recharge to Coyote Pond Rec	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transmission Link from local 2 guad creek to Guadalupe creek	5,618.30	340	7,081.00	3,404.50	1,449.90	2,745.80	2,382.20	4,565.10	5,361.20	5,519.40	472,995.00
Transmission Link from local 2 lower coyote recharge to lower coyote r	1,460.00	1,402.20	1,362.30	1,460.00	1,460.00	1,460.00	1,092.00	856	1,092.00	1,460.00	118,224.60
Transmission Link from local 2 overfelt to Overfelt Ponds	0	0	0.00	0	0	0	0	0	0	0	0.00
Transmission Link from local 2 pen ponds to Penitencia Ponds	0	0	0.00	0	0	0	0	0	0	0	0.00
Transmission Link from local 2 upper coyote to NC Upper Coyote Recharg	171.7	165.8	0	159.3	171.7	171.7	134.9	111.3	134.9	171.7	11,351.00
Transmission Link from local Chesbro release to recharge to Church Pon	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transmission Link from local Uvas release to recharge to Uvas Recharge	10,117.80	1,787.30	3,381.80	6,791.40	4,302.40	9,556.80	6,995.30	8,713.50	10,117.80	6,791.40	616,033.90
Transmission Link from local alamitos creek to Alamitos Creek recharge	1,106.50	101.70	2,022.10	916.30	447.00	849.20	736.8	1,042.90	1,405.70	1,305.10	130,730.70
Transmission Link from local anderson 2 coyote ponds to NC Coyote Pond	10,233.10	6,030.30	10,217.50	10,950.00	9,553.90	10,073.60	3,024.70	5,107.80	5,530.50	10,950.00	844,225.60
Transmission Link from local anderson release to main ave ponds to Mai	2,122.80	733.6	451.4	1,132.00	1,264.50	2,289.40	0	500	500	1,220.70	88,151.30
Transmission Link from local anderson res to Church Pond and Llagas Re	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local anderson res to Lower Llagas Recharge	0.00	0	0.00	0	0	0	0	0	0.00	0.00	0.00
Transmission Link from local calabasas creek to Calabazas Creek Rechar	1,149.00	236	1,316.90	141	353	200	50	374.4	1,015.20	1,869.00	72,249.20
Transmission Link from local calero creek to Calero Creek recharge	724.00	43	851.50	438.70	186.8	353.80	307.00	588.30	689.00	711.30	60,734.20
Transmission Link from local guadalupe 1 to Los Capitancillos Ponds	2,141.90	23	2,651.20	1,149.70	597.9	1,132.30	982.30	1,365.50	1,681.70	1,982.40	166,994.80
Transmission Link from local guadaupe 2 to Almaden and Guadalupe Ponds	6,371.30	385.6	0.00	3,178.80	1,644.20	3,113.80	2,701.40	5,176.90	6,079.70	6,259.10	414,674.20
Transmission Link from local lg creek diversion to Los Gatos Ck rechar	0.00	258.40	5,449.30	3,634.40	419.00	496.00	53.50	496.00	1,915.40	992.00	251,534.60
Transmission Link from local lg pond diversion to Los Gatos Ponds	4,757.30	3,646.40	0.00	9,877.80	4,740.40	4,341.40	3,231.00	5,346.10	9,581.10	11,023.00	968,849.70
Transmission Link from local lower Llagas recharge to Lower Llagas Rec	2,980.30	294.6	2,415.60	1,912.10	382	485.2	1,466.60	4,340.00	6,435.90	4,023.90	342,598.40
Transmission Link from local penitencia creek to Penitencia Creek Rech	1,335.80	164	0	475	334	484	227	410	747	1,198.00	62,832.00
Transmission Link from local regnart creek to Regnart Creek Recharge	276.7	14	333.2	15	20	4	1	73.3	189.4	451.7	16,962.80
Transmission Link from local release 2 ford ponds to Ford Pond Recharg	0.00	0.00	0.00	0.00	0.00	0	0	0.00	0.00	0.00	0.00
Transmission Link from local release 2 upper coyote to Coyote Upper Re	15,284.40	7,002.60	11,456.30	14,050.10	10,741.30	15,768.70	0	7,813.10	7,309.00	14,105.50	1,124,151.30
Transmission Link from local rodeo creek to Rodeo Creek Recharge	67.6	2	126.00	2	3	0	0	16	50	178.7	5,041.90
Transmission Link from local ross creek recharge to Ross Creek Recharg	863.8	290	1,097.40	487	421	364	364	517	633	888	57,790.50
Transmission Link from local san tomoa creek to San Tomas Creek Rechar	691.4	188.5	749.1	299.1	271.5	170.3	233.9	311.8	388.5	771.9	48,740.30
Transmission Link from local saratoga div to NC IWRP recharge	0.00	0	0.00	0.00	0	0.00	0	0	0.00	0.00	0.00
Transmission Link from local saratogo creek to Saratoga Creek Recharge	2,683.40	648	3,257.70	1,133.00	593	1,203.20	981	958.2	1,846.00	3,512.20	184,761.70
Transmission Link from local silver creek to Silver Creek Recharge	722.40	85	681.20	715.00	331.00	93.00	262.00	58.00	103.00	730.00	53,022.40
Transmission Link from local stevens creek to Stevens Creek Recharge	2,561.20	599.6	3,405.80	3,650.00	2,484.30	1,437.40	1,362.20	2,691.50	3,631.60	3,650.00	273,160.50
Transmission Link from local thompson creek to Thompson Creek Recharge	750.7	47	1,016.70	617	362	52	178	32	109	927	54,082.70
Transmission Link from local wildcat creek to Wildcat Creek Recharge	443.50	122.50	486.90	194.40	176.50	110.70	152.10	202.70	252.50	484.10	30,485.90
Sum	82,523.60	26,223.50	61,488.50	70,152.40	45,773.10	62,219.30	26,918.70	52,667.30	67,799.00	84,544.70	6,737,796.00
demand_reduction_fctr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.25	-0.38	0.00	

Strategy C04

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Groundwater Storage (Acre-foot)	Groundwater	Groundwater	Groundwater S	Groundwater S	Groundwater S	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater Storage (Acre-foo	
Coyote Subbasin	19795.5	20120.6	22604.1	21526.2	21682.9	21630.1	10243.4	5272.9	5351.4	23677.4	
LlagasSubbasin	80063.0	113825.9	143735.7	139231.3	127774.3	125567.2	116006.0	112272.9	115409.0	143338.5	
North County Santa Clara Sbb	278073.4	260582.8	334031.2	297654.1	270587.7	254023.6	177747.7	121972.1	114547.5	325950.9	
Sum	377931.9	394529.3	500371.0	458411.6	420044.9	401220.9	303997.1	239517.9	235307.9	492966.8	
Reservoir Storage Volume (Acre-foot)	Reservoir Stor	Reservoir Stor	Reservoir Stora	Reservoir Stora	Reservoir Stora	Reservoir Stor	Reservoir Stor	Reservoir Stor	Reservoir Stor	Reservoir Storage Volume (Acr	
Almaden Reservoir	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	351.0	
Anderson Reservoir	22000.0	79574.3	171300.0	153098.4	85369.0	38739.6	22000.0	22000.0	22000.0	171300.0	
Calero Reservoir	1000.0	693.5	5600.0	1000.0	932.6	1000.0	1000.0	993.9	2233.3	4457.5	
Chesbro Reservoir	500.0	500.0	4586.0	500.0	451.2	451.7	500.0	500.0	1293.4	4586.0	
Coyote Reservoir	1000.0	1279.4	5200.0	5200.0	1032.4	3571.1	949.4	1000.0	1000.0	5200.0	
Guadalupe Reservoir	200.0	168.9	1188.0	200.0	200.0	200.0	200.0	200.0	200.0	1188.0	
Lexington Reservoir	1475.3	685.8	16000.0	4475.5	1327.2	551.5	218.9	1825.8	3996.2	9395.4	
Pacheco Reservoir	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	
Stevens Creek Reservoir	31.0	181.5	2368.0	583.6	31.0	31.0	31.0	31.0	1609.5	2368.0	
Uvas Reservoir	2703.9	2824.1	5957.6	619.1	1104.1	557.6	500.0	3650.5	6249.7	6258.0	
cvp caryover	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5053.0	
cvp overflow not used	0.0	11654.2	195267.2	195267.2	195267.2	195267.2	195267.2	195267.2	195267.2	210455.6	
semitropic reservoir	242493.3	177567.0	258887.8	263361.1	233021.6	219148.7	183773.1	149411.3	119982.5	230117.0	
swp caryyover	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
swp overflow not used	0.0	0.0	51252.5	51252.5	51252.5	51252.5	51252.5	51252.5	51252.5	51252.5	
Sum	276603.5	280328.7	722807.1	680757.4	575188.8	515970.8	460892.2	431332.2	410284.2	706982.0	
Groundwater Natural Recharge (Acre-foot)	Groundwater	Groundwater	Groundwater N	Groundwater N	Groundwater N	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater N	Groundwater N
Coyote Subbasin	2535.0	1326.9	5335.0	1838.8	1544.9	1101.9	1457.8	2541.2	3273.6	2141.8	183393.1
LlagasSubbasin	24664.6	19659.9	33521.4	20971.2	20239.6	19330.3	21198.0	22272.2	21962.7	22365.9	1888278.1
North County Santa Clara Sbb	39177.8	26853.8	56312.9	30423.5	26962.8	27176.6	25998.0	24763.5	29247.2	34205.1	2881697.9
Sum	66377.4	47840.6	95169.3	53233.5	48747.3	47608.8	48653.8	49576.9	54483.5	58712.8	4953369.1
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission Li	Transmission Li	Transmission Li	Transmission L	Transmission L	Transmission L	Transmission L	Transmission Li	Transmission Li
Transmission Link from lake elsman to sjw west to SJ Water Company	12613.8	1362.0	14943.8	3997.9	3455.9	6503.9	3720.9	6431.9	3455.9	7405.9	815457.0
Transmission Link from stanford water to Stanford Moffett Field Ames	823.0	64.0	692.0	187.0	160.0	303.0	174.0	296.0	160.0	681.0	51733.2
Sum	13436.8	1426.0	15635.8	4184.9	3615.9	6806.9	3894.9	6727.9	3615.9	8086.9	867190.3
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission Li	Transmission Li	Transmission Li	Transmission L	Transmission L	Transmission L	Transmission L	Transmission Li	Transmission Li
Transmission Link from SCRWA to Morgan Hill to Morgan Hill Service Are	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from deliver recycled to gilroy to Gilroy Service Ar	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	131196.6
Transmission Link from hecker pass recycled to Gilroy Service Area	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from morgan hill recycled to Morgan Hill Service Are	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from recycle pa to palo alto to Palo Alto Service Ar	1055.8	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	69136.2
Transmission Link from recycle sv to sunnyvale to Sunnyvale Service Ar	1900.0	2400.0	2400.0	2400.0	2400.0	2400.0	2400.0	2400.0	2400.0	2400.0	196297.1
Transmission Link from recycled 1 to Llagas Ag	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	98400.0
Transmission Link from recycled SB to SJWC to SJ Water Company	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	249415.8
Transmission Link from recycled SB to santa clara to Santa Clara Servi	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	383760.0
Transmission Link from recycled pa to mountain view to Mountain View S	994.2	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	98961.3

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Transmission Link from recycled sb to milpitas to Milpitas Service Are	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	172692.0
Transmission Link from recycled sb to sj muni north to SJ Muni North	9500.4	9839.7	9839.7	9839.7	9839.7	9839.7	9839.7	9839.7	9839.7	9839.7	806516.1
Transmission Link from recycled sb to sjMuni edenvale to SJ Muni servi	4071.6	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	306387.9
Sum	30149.6	30649.5	30649.5	30649.5	30649.5	30649.5	30649.5	30649.5	30649.5	30649.5	2512763.1
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission Li	Transmission Li	Transmission Li	Transmission L	Transmission L	Transmission L	Transmission L	Transmission Li	Transmission Li
Transmission Link from hh to PHills to Purisma Hills Service Area	1828.0	1828.0	1828.0	1828.0	1828.0	1516.0	1516.0	1516.0	1516.0	1828.0	147200.7
Transmission Link from hh to Sunnyvale to Sunnyvale Service Area	13249.0	13249.0	13249.0	13249.0	13249.0	10988.0	10988.0	10988.0	10988.0	13249.0	1066882.9
Transmission Link from hh to milpitas service area to Milpitas Service	8451.0	8451.0	8451.0	8451.0	8451.0	7008.8	7008.8	7008.8	7008.8	8451.0	680521.4
Transmission Link from hh to moffett ames to Stanford Moffett Field Am	3395.0	3395.0	3395.0	3395.0	3395.0	2815.6	2815.6	2815.6	2815.6	3395.0	273384.2
Transmission Link from hh to mountain view to Mountain View Service Ar	14487.4	14407.8	14407.8	14407.8	14407.8	12120.0	12120.0	12120.0	12101.1	14407.8	1160249.7
Transmission Link from hh to palo alto to Palo Alto Service Area	14295.5	14397.2	14397.2	14397.2	14397.2	12121.7	12121.7	12121.7	12108.8	14397.2	1159297.8
Transmission Link from hh to santa clara to Santa Clara Service Area	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from hh to sj muni n to SJ Muni North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sum	55705.9	55728.0	55728.0	55728.0	55728.0	46570.3	46570.3	46570.3	46538.4	55728.0	4487536.6
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission Li	Transmission Li	Transmission Li	Transmission L	Transmission L	Transmission L	Transmission L	Transmission Li	Transmission Li
Transmission Link from local stevens creek flood release to Tributary	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from local uvas flood release to Tributary Inflow 5	0.0	0.0	17750.1	0.0	0.0	0.0	0.0	1311.8	4696.4	8559.2	903324.5
Transmission Link from release from anderson to cvp pl to Anderson PL	420.5	59758.5	65195.0	24386.8	48072.0	7525.9	11247.2	5174.5	7451.7	29168.8	2063653.1
Transmission Link from release from calero to cvp pl to Calero PL rele	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from release from pacheco to Tributary Inflow 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sum	420.5	59758.5	82945.1	24386.8	48072.0	7525.9	11247.2	6486.3	12148.1	37728.0	2966977.6
Streamflow (below node or reach listed) (All Rivers) (Acre-foot)	Streamflow (b	Streamflow (b	Streamflow (be	Streamflow (be	Streamflow (be	Streamflow (b	Streamflow (b	Streamflow (b	Streamflow (b	Streamflow (be	Streamflow (be
SWP 1 Supply 0 \ Headflow	61999.1	10999.8	96998.6	29999.6	29999.6	56999.2	21999.7	27999.6	23999.6	63999.1	4939927.4
cvp 0 source supply 0 \ Headflow	121128.4	69175.9	152497.8	94555.5	64999.0	100323.6	64999.0	75023.6	81706.6	108114.6	8991576.1
Demand Site Inflows and Outflows (Demand Site: NC Coyote Pond Recharge) (Ac	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from IPR Coyote	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Inflow from Lower Coyote Creek	10233.1	9054.1	10358.1	10950.0	10931.8	10950.0	5289.4	5067.1	7117.4	10950.0	865893.9
Inflow from cvp 3 santa clara conduit	390.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	390.4
Outflow to North County Santa Clara Sbb	-10623.5	-9054.1	-10358.1	-10950.0	-10931.8	-10950.0	-5289.4	-5067.1	-7117.4	-10950.0	-866284.3
Sum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Demand Site Inflows and Outflows (Demand Site: Ford Pond Recharge) (Acre-foo	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from IPR Coyote	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Inflow from Lower Coyote Creek	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Outflow to North County Santa Clara Sbb	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Demand Site Inflows and Outflows (Demand Site: Los Gatos Ponds) (Acre-foot)	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from IPR LG Ponds	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Inflow from Los Gatos Creek	4757.3	3731.7	0.0	10590.0	4496.4	4280.9	3207.6	5338.9	9579.6	11023.0	900137.4
Inflow from SWP 3 central pipeline	0.0	211.9	0.0	0.0	0.0	0.0	2930.2	1686.6	0.0	4758.5	81632.8
Inflow from cvp 7 central pl	16843.6	7955.4	0.0	1309.0	7402.6	7618.1	2956.0	4873.4	2319.4	6013.6	294069.7

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Outflow to North County Santa Clara Sbb	-21600.9	-11899.0	0.0	-11899.0	-11899.0	-11899.0	-9093.8	-11899.0	-11899.0	-21795.2	-1275839.8
Sum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Demand Site Inflows and Outflows (Demand Site: Almaden and Guadalupe Ponds	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from Guadalupe Creek	6,371.30	385.6	0.00	3,563.20	1,644.20	3,113.80	2,701.40	5,176.90	6,079.70	6,259.10	388,269.00
Inflow from IPR Guadalupe	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inflow from SWP 4 almaden valley pipeline	126.80	276.30	0.00	894.70	0.00	0.00	0.00	0.00	0.00	667.30	12,387.50
Inflow from cvp 5 almaden valley pl	262.10	3,502.60	0.00	2,793.00	5,549.70	2,536.50	170.50	0.00	0.00	680.40	52,040.30
Outflow to North County Santa Clara Sbb	-6,760.20	-4,164.40	0.00	-7,250.90	-7,193.90	-5,650.30	-2,871.90	-5,176.90	-6,079.70	-7,606.90	-452,696.80
Sum	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demand Site Inflows and Outflows (Demand Site: Kooser) (Acre-foot)	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from IPR Guadalupe	0.00	0	0.00	0.00	0	0	0	0	0	0.00	0.00
Inflow from SWP 4 almaden valley pipeline	47.00	60.4	0.00	436.80	0	0	0	0	0	584.00	16,821.10
Inflow from cvp 5 almaden valley pl	245.8	828.3	0	878.4	1563.2	1017.4	432	292.8	758.9	584.00	53,578.20
Outflow to North County Santa Clara Sbb	-292.80	-888.7	0.00	-1,315.20	-1563.2	-1017.4	-432	-292.8	-758.9	-1,168.00	-70,399.30
Sum	0.00	0	0.00	0.00	0	0	0	0	0	0.00	0.00
Demand Site Inflows and Outflows (Demand Site: Los Capitancillos Ponds) (Acre-	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from Guadalupe Creek	2,141.90	23	2,688.70	1,111.40	597.9	1,132.30	982.30	1,365.50	1,681.70	1,982.40	168,281.80
Inflow from IPR Guadalupe	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inflow from SWP 4 almaden valley pipeline	46.10	100.7	0.00	412.50	0	0.00	0	0.00	0.00	339.30	10,926.70
Inflow from cvp 5 almaden valley pl	95.30	1357.6	0.00	1,112.80	2,018.10	922.40	62.00	0.00	33.10	408.00	29,834.50
Outflow to North County Santa Clara Sbb	-2,283.30	-1,481.20	-2,688.70	-2,636.70	-2,616.00	-2,054.70	-1,044.30	-1,365.50	-1,714.80	-2,729.60	-209,043.00
Sum	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demand Site Inflows and Outflows (Demand Site: Overfelt Ponds) (Acre-foot)	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from IPR Penitencia	0	0	0.00	0	0	0	0	0	0	0	0.00
Inflow from Penitencia Creek	0	0	0.00	0.00	0	0	0	0	0	0	0.00
Inflow from SWP 2 SBA pipeline	450.7	1453.1	1,460.00	1,460.00	1460	1,421.70	548.4	937.2	1357.8	1,460.00	111,313.40
Outflow to North County Santa Clara Sbb	-450.7	-1453.1	-1,460.00	-1,460.00	-1460	-1,421.70	-548.4	-937.2	-1357.8	-1,460.00	-111,313.40
Sum	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Penitencia Ponds) (Acre-foot)	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from IPR Penitencia	0	0	0.00	0	0	0	0	0	0	0	0.00
Inflow from Penitencia Creek	0	0	0.00	0.00	0.00	0	0	0	0	0	0.00
Inflow from SWP 2 SBA pipeline	766.20	2,470.30	2,482.00	2,482.00	2,482.00	2,416.80	932.3	1,593.30	2308.2	2,482.00	189,232.80
Outflow to North County Santa Clara Sbb	-766.20	-2,470.30	-2,482.00	-2,482.00	-2,482.00	-2,416.80	-932.3	-1,593.30	-2,308.20	-2,482.00	-189,232.80
Sum	0	0	0	0	0	0	0	0	0	0	0
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission Li	Transmission Li	Transmission Li	Transmission L	Transmission L	Transmission L	Transmission L	Transmission Li	Transmission Li
Transmission Link from Uvas release to Llagas recharge to Church Pond	0	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transmission Link from anderson release to butterfield to Butterfield	0.00	0	0.00	0.00	0.00	0	0	0.00	0.00	0.00	0.00
Transmission Link from anderson release to madronne to Madrone Ponds	7,888.80	1650	1,677.50	3,795.00	1,999.90	6011	1237.5	1,677.50	1,500.00	3,368.80	251,900.30
Transmission Link from lex pl 1 to Rinconanda WTP	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transmission Link from lex pl 10 to NC IWRP recharge	0	0	0	0	0	0	0	0	0	0	0

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Transmission Link from lex pl 2 to San Tomas Creek Recharge	0	0	0	0	0	0	0	0	0	0	0.00
Transmission Link from lex pl 3 to Wildcat Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 4 to Saratoga Creek Recharge	0	0	0	0	0	0	0	0	0	0	0.00
Transmission Link from lex pl 5 to Rodeo Creek Recharge	0	0	0	0	0	0	0	0	0	0	0.00
Transmission Link from lex pl 6 to Calabazas Creek Recharge	0	0	0	0	0	0	0	0	0	0	0.00
Transmission Link from lex pl 7 to Regnart Creek Recharge	0	0	0	0	0	0	0	0	0	0	0.00
Transmission Link from lex pl 8 to Mcclellan Pond recharge	0	0	0.00	0	0	0	0	0	0	0	0.00
Transmission Link from lex pl 9 to Stevens Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local 2 coyote pond recharge to Coyote Pond Rec	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transmission Link from local 2 guad creek to Guadalupe creek	5,618.30	340	7,081.00	3,142.10	1,449.90	2,745.80	2,382.20	4,565.10	5,361.20	5,519.40	475,631.80
Transmission Link from local 2 lower coyote recharge to lower coyote r	1,460.00	1460	1,381.10	1,460.00	1,460.00	1460	1092	1052.4	1,251.30	1,460.00	118,639.90
Transmission Link from local 2 overfelt to Overfelt Ponds	0	0	0.00	0	0	0	0	0	0	0	0.00
Transmission Link from local 2 pen ponds to Penitencia Ponds	0	0	0.00	0	0	0	0	0	0	0	0.00
Transmission Link from local 2 upper coyote to NC Upper Coyote Recharg	171.7	171.7	0	171.7	171.7	171.7	134.9	130.9	150.8	171.7	10,774.10
Transmission Link from local Chesbro release to recharge to Church Pon	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transmission Link from local Uvas release to recharge to Uvas Recharge	10,117.80	1,787.30	3,381.80	7,650.70	3,842.20	9,556.80	6,995.30	8,713.50	10,117.80	6,791.40	584,864.80
Transmission Link from local alamitos creek to Alamitos Creek recharge	1,106.50	101.70	2,050.30	897.10	447.00	849.20	736.8	1,042.90	1,405.70	1,305.10	131,201.30
Transmission Link from local anderson 2 coyote ponds to NC Coyote Pond	10,233.10	9,054.10	10,358.10	10,950.00	10,931.80	10950	5289.4	5,067.10	7,117.40	10,950.00	865,893.90
Transmission Link from local anderson release to main ave ponds to Mai	2,122.80	608.2	451.4	1,021.20	538.1	2185	333	451.4	630.5	1,027.00	76,260.40
Transmission Link from local anderson res to Church Pond and Llagas Re	0	0	0	0	0	0	0	0	0	0	0.00
Transmission Link from local anderson res to Lower Llagas Recharge	0.00	0	0.00	0	0	0	0	0	0.00	0.00	0.00
Transmission Link from local calabasas creek to Calabazas Creek Rechar	1,149.00	236	1,346.90	141	353	200	50	374.4	1,015.20	1,869.00	72,255.50
Transmission Link from local calero creek to Calero Creek recharge	724.00	43	863.20	404.90	186.8	353.80	307.00	588.30	689.00	711.30	61,077.00
Transmission Link from local guadalupe 1 to Los Capitancillos Ponds	2,141.90	23	2,688.70	1,111.40	597.9	1,132.30	982.30	1,365.50	1,681.70	1,982.40	168,281.80
Transmission Link from local guadaupe 2 to Almaden and Guadalupe Ponds	6,371.30	385.6	0.00	3,563.20	1,644.20	3,113.80	2,701.40	5,176.90	6,079.70	6,259.10	388,269.00
Transmission Link from local lg creek diversion to Los Gatos Ck rechar	0.00	263.10	5,524.30	3,392.00	377.10	496.00	50.10	496.00	1,914.80	992.00	258,706.20
Transmission Link from local lg pond diversion to Los Gatos Ponds	4,757.30	3,731.70	0.00	10,590.00	4,496.40	4,280.90	3,207.60	5,338.90	9,579.60	11,023.00	900,137.40
Transmission Link from local lower Llagas recharge to Lower Llagas Rec	2,980.30	294.6	2,415.60	2,502.00	368.2	498.9	1,466.60	4,340.00	6,435.90	4,023.90	324,245.80
Transmission Link from local penitencia creek to Penitencia Creek Rech	1,335.80	164	0	627	334	484	227	410	747	1,198.00	56,045.50
Transmission Link from local regnart creek to Regnart Creek Recharge	276.7	14	339.5	15	20	4	1	73.3	189.4	451.7	16,969.20
Transmission Link from local release 2 ford ponds to Ford Pond Recharg	0.00	0.00	0.00	0.00	0.00	0	0	0.00	0.00	0.00	0.00
Transmission Link from local release 2 upper coyote to Coyote Upper Re	15,284.40	13,038.80	10,228.70	14,050.10	15,277.70	15511.3	3821.4	9,154.30	12,033.80	15,768.70	1,172,584.70
Transmission Link from local rodeo creek to Rodeo Creek Recharge	67.6	2	126.00	2	3	0	0	16	50	178.7	5,041.90
Transmission Link from local ross creek recharge to Ross Creek Recharg	863.8	290	1,121.70	487	421	364	364	517	633	888	57,814.80
Transmission Link from local san tomoa creek to San Tomas Creek Rechar	691.4	188.5	763.2	299.1	271.5	170.3	233.9	311.8	388.5	771.9	48,741.70
Transmission Link from local saratoga div to NC IWRP recharge	0.00	0	0.00	0.00	0	0.00	0	0	0.00	0.00	0.00
Transmission Link from local saratogo creek to Saratoga Creek Recharge	2,683.40	648	3,324.20	1,133.00	593	1,203.20	981	958.2	1,846.00	3,512.20	184,768.20
Transmission Link from local silver creek to Silver Creek Recharge	722.40	85	690.50	715.00	331.00	93.00	262.00	58.00	103.00	730.00	53,023.30
Transmission Link from local stevens creek to Stevens Creek Recharge	2,561.20	599.6	3,452.70	3,650.00	2,484.30	1,437.40	1,362.20	2,691.50	3,631.60	3,650.00	273,165.10
Transmission Link from local thompson creek to Thompson Creek Recharge	750.7	47	1,030.80	617	362	52	178	32	109	927	54,084.10
Transmission Link from local wildcat creek to Wildcat Creek Recharge	443.50	122.50	496.10	194.40	176.50	110.70	152.10	202.70	252.50	484.10	30,486.80
Sum	82,523.60	35,349.30	60,793.10	72,581.90	49,138.30	63,435.40	34,548.50	54,805.40	74,914.30	86,014.20	6,640,864.50
demand_reduction_fctr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.10	0.00	

Strategy C05

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Groundwater Storage (Acre-foot)	Groundwater	Groundwater	Groundwater S	Groundwater S	Groundwater S	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater Storage (Acre-fo	
Coyote Subbasin	19795.5	10527.6	22439.9	22942.1	14319.3	3223.5	0.0	0.0	1547.5	22809.7	
LlagasSubbasin	80063.0	115281.6	143369.5	139215.9	122690.3	108618.5	94746.2	91957.4	96211.9	143773.1	
North County Santa Clara Sbb	278073.4	241148.9	333852.0	296745.3	256683.9	230991.6	143998.1	127525.8	140740.2	326976.1	
Sum	377931.9	366958.1	499661.4	458903.3	393693.5	342833.6	238744.3	219483.2	238499.6	493558.8	
Reservoir Storage Volume (Acre-foot)	Reservoir Stor	Reservoir Stor	Reservoir Stora	Reservoir Stora	Reservoir Stora	Reservoir Stor	Reservoir Stor	Reservoir Stor	Reservoir Stor	Reservoir Storage Volume (Acr	
Almaden Reservoir	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	351.0	
Anderson Reservoir	22000.0	22000.0	69864.0	37489.8	21939.3	21954.3	21550.4	22000.0	22000.0	52014.4	
Calero Reservoir	1000.0	7860.5	23200.0	23200.0	9357.4	1000.0	1000.0	1000.0	5517.5	23200.0	
Chesbro Reservoir	500.0	500.0	4586.0	500.0	451.2	451.7	500.0	500.0	1293.4	4586.0	
Coyote Reservoir	1000.0	1000.0	5200.0	5200.0	997.2	993.7	910.4	1000.0	1000.0	5200.0	
Guadalupe Reservoir	200.0	168.9	1188.0	218.3	200.0	200.0	200.0	200.0	200.0	1188.0	
Lexington Reservoir	1475.3	670.6	16000.0	4895.1	1445.7	588.7	229.4	1829.1	3997.5	9395.4	
Pacheco Reservoir	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	
Stevens Creek Reservoir	31.0	181.5	2368.0	583.6	31.0	31.0	31.0	31.0	1609.5	2368.0	
Uvas Reservoir	2703.9	2824.1	5957.6	619.1	1104.1	557.6	500.0	3650.5	6249.7	6258.0	
cvp caryover	0.0	0.0	0.0	7637.9	0.0	0.0	0.0	0.0	0.0	23564.5	
cvp overflow not used	0.0	68764.7	253302.4	253302.4	253302.4	253302.4	253302.4	253302.4	253302.4	313081.6	
semitropic reservoir	242493.3	319703.7	349921.0	349958.0	323286.8	307307.8	271571.3	237691.1	208671.4	342448.6	
swp caryyover	0.0	0.0	0.0	5091.9	0.0	0.0	0.0	0.0	0.0	12903.9	
swp overflow not used	0.0	11157.9	124461.6	124461.6	124461.6	124461.6	124461.6	124461.6	124461.6	128706.8	
Sum	276603.5	440032.0	861248.6	818357.7	741776.7	716048.7	679456.6	650865.8	633502.9	930266.3	
Groundwater Natural Recharge (Acre-foot)	Groundwater	Groundwater	Groundwater N	Groundwater N	Groundwater N	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater N	Groundwater N
Coyote Subbasin	2535.0	1326.9	5335.0	1838.8	1544.9	1101.9	1457.8	2541.2	3273.6	2141.8	183393.1
LlagasSubbasin	24664.6	19659.9	33521.4	20971.2	20239.6	19330.3	21198.0	22272.2	21962.7	22365.9	1888278.1
North County Santa Clara Sbb	39177.8	26853.8	56312.9	30423.5	26962.8	27176.6	25998.0	24763.5	29247.2	34205.1	2881697.9
Sum	66377.4	47840.6	95169.3	53233.5	48747.3	47608.8	48653.8	49576.9	54483.5	58712.8	4953369.1
Transmission Link Flow (Acre-foot)	Transmission	Transmission	Transmission Li	Transmission Li	Transmission Li	Transmission	Transmission	Transmission	Transmission	Transmission Li	Transmission Li
Transmission Link from lake elsman to sjw west to SJ Water Company	12613.8	1362.0	14943.8	3997.9	3455.9	6503.9	3720.9	6431.9	3455.9	7405.9	815457.0
Transmission Link from stanford water to Stanford Moffett Field Ames	823.0	64.0	692.0	187.0	160.0	303.0	174.0	296.0	160.0	681.0	51733.2
Sum	13436.8	1426.0	15635.8	4184.9	3615.9	6806.9	3894.9	6727.9	3615.9	8086.9	867190.3
Transmission Link Flow (Acre-foot)	Transmission	Transmission	Transmission Li	Transmission Li	Transmission Li	Transmission	Transmission	Transmission	Transmission	Transmission Li	Transmission Li
Transmission Link from SCRWA to Morgan Hill to Morgan Hill Service Are	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from deliver recycled to gilroy to Gilroy Service Ar	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	131196.6
Transmission Link from hecker pass recycled to Gilroy Service Area	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from morgan hill recycled to Morgan Hill Service Are	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from recycle pa to palo alto to Palo Alto Service Ar	1055.7	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	69136.2
Transmission Link from recycle sv to sunnyvale to Sunnyvale Service Ar	1900.0	2400.0	2400.0	2400.0	2400.0	2400.0	2400.0	2400.0	2400.0	2400.0	196297.1
Transmission Link from recycled 1 to Llagas Ag	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	98400.0
Transmission Link from recycled SB to SJWC to SJ Water Company	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	249415.8
Transmission Link from recycled SB to santa clara to Santa Clara Servi	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	383760.0
Transmission Link from recycled pa to mountain view to Mountain View S	994.2	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	98961.3

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Transmission Link from recycled sb to milpitas to Milpitas Service Are	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	172692.0
Transmission Link from recycled sb to sj muni north to SJ Muni North	9500.4	9839.7	9839.7	9839.7	9839.7	9839.7	9839.7	9839.7	9839.7	9839.7	806516.1
Transmission Link from recycled sb to sjMuni edenvale to SJ Muni servi	4071.6	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	306387.9
Sum	30149.6	30649.5	30649.5	30649.5	30649.5	30649.5	30649.5	30649.5	30649.5	30649.5	2512763.1
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission Li	Transmission Li	Transmission Li	Transmission L	Transmission L	Transmission L	Transmission L	Transmission Li	Transmission Li
Transmission Link from hh to PHills to Purisma Hills Service Area	1828.0	1828.0	1828.0	1828.0	1828.0	1516.0	1516.0	1516.0	1516.0	1828.0	147200.7
Transmission Link from hh to Sunnyvale to Sunnyvale Service Area	13249.0	13249.0	13249.0	13249.0	13249.0	10988.0	10988.0	10988.0	10988.0	13249.0	1066882.9
Transmission Link from hh to milpitas service area to Milpitas Service	8451.0	8451.0	8451.0	8451.0	8451.0	7008.8	7008.8	7008.8	7008.8	8451.0	680521.4
Transmission Link from hh to moffett ames to Stanford Moffett Field Am	3395.0	3395.0	3395.0	3395.0	3395.0	2815.6	2815.6	2815.6	2815.6	3395.0	273384.2
Transmission Link from hh to mountain view to Mountain View Service Ar	14487.4	14407.8	14407.8	14407.8	14407.8	12120.0	12120.0	12101.1	11982.8	14407.8	1160486.2
Transmission Link from hh to palo alto to Palo Alto Service Area	14295.5	14397.2	14397.2	14397.2	14397.2	12121.7	12121.7	12108.8	12004.1	14397.2	1159566.9
Transmission Link from hh to santa clara to Santa Clara Service Area	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from hh to sj muni n to SJ Muni North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sum	55705.9	55728.0	55728.0	55728.0	55728.0	46570.3	46570.3	46538.4	46315.5	55728.0	4488042.2
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission Li	Transmission Li	Transmission Li	Transmission L	Transmission L	Transmission L	Transmission L	Transmission Li	Transmission Li
Transmission Link from local stevens creek flood release to Tributary	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from local uvas flood release to Tributary Inflow 5	0.0	0.0	35212.7	0.0	0.0	0.0	0.0	1311.8	4696.4	13106.9	1011388.9
Transmission Link from release from anderson to cvp pl to Anderson PL	420.5	5019.4	59949.9	2174.2	7758.0	344.8	442.7	4730.9	7088.6	971.2	679020.2
Transmission Link from release from calero to cvp pl to Calero PL rele	0.0	1903.7	0.0	922.3	3643.5	378.2	0.0	0.0	1216.9	922.3	71743.1
Transmission Link from release from pacheco to Tributary Inflow 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sum	420.5	6923.2	95162.6	3096.5	11401.5	723.0	442.7	6042.7	13001.9	15000.5	1762152.2
Streamflow (below node or reach listed) (All Rivers) (Acre-foot)	Streamflow (b	Streamflow (b	Streamflow (be	Streamflow (be	Streamflow (be	Streamflow (b	Streamflow (b	Streamflow (b	Streamflow (b	Streamflow (be	Streamflow (be
SWP 1 Supply 0 \ Headflow	61999.1	10999.8	96998.6	29999.6	29999.6	56999.2	21999.7	27999.6	23999.6	63999.1	4939927.4
cvp 0 source supply 0 \ Headflow	121128.4	69175.9	152497.8	94555.5	64999.0	100323.6	64999.0	75023.6	81706.6	108114.6	8991576.1
Demand Site Inflows and Outflows (Demand Site: NC Coyote Pond Recharge) (Ac	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from IPR Coyote	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Inflow from Lower Coyote Creek	10233.1	1801.9	10629.5	10950.0	5980.8	303.6	782.0	4567.9	4705.1	10950.0	810399.5
Inflow from cvp 3 santa clara conduit	390.4	0.0	0.0	0.0	0.0	339.9	0.0	0.0	1216.8	0.0	10929.8
Outflow to North County Santa Clara Sbb	-10623.5	-1801.9	-10629.5	-10950.0	-5980.8	-643.5	-782.0	-4567.9	-5921.9	-10950.0	-821329.3
Sum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Demand Site Inflows and Outflows (Demand Site: Ford Pond Recharge) (Acre-foo	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from IPR Coyote	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Inflow from Lower Coyote Creek	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Outflow to North County Santa Clara Sbb	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Demand Site Inflows and Outflows (Demand Site: Los Gatos Ponds) (Acre-foot)	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from IPR LG Ponds	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Inflow from Los Gatos Creek	4757.3	3712.0	0.0	9877.8	4740.4	4341.4	3231.0	5346.1	9581.1	11023.0	862419.4
Inflow from SWP 3 central pipeline	0.0	1612.4	0.0	0.0	2522.3	0.0	3726.6	1082.9	0.0	4758.5	80017.2
Inflow from cvp 7 central pl	16843.6	2992.4	0.0	1010.6	4278.6	7557.6	1904.2	5470.0	2317.9	6013.6	286560.5

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Outflow to North County Santa Clara Sbb	-21600.9	-8316.8	0.0	-10888.4	-11541.3	-11899.0	-8861.8	-11899.0	-11899.0	-21795.2	-1228997.1
Sum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Demand Site Inflows and Outflows (Demand Site: Almaden and Guadalupe Pond	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from Guadalupe Creek	6,371.30	8030	0.00	7,348.00	8,030.00	7,511.70	2,705.70	6,322.10	7,664.20	8,030.00	476,783.30
Inflow from IPR Guadalupe	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inflow from SWP 4 almaden valley pipeline	126.80	0.00	0.00	0.00	0.00	0.00	0.00	117.00	0.00	0.00	243.80
Inflow from cvp 5 almaden valley pl	262.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	262.10
Outflow to North County Santa Clara Sbb	-6,760.20	-8,030.00	0.00	-7,348.00	-8,030.00	-7,511.70	-2,705.70	-6,439.10	-7,664.20	-8,030.00	-477,289.20
Sum	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demand Site Inflows and Outflows (Demand Site: Kooser) (Acre-foot)	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from IPR Guadalupe	0.00	0	0.00	0.00	0	0	0	0	0	0.00	0.00
Inflow from SWP 4 almaden valley pipeline	47.00	350.3	0.00	387.20	148.8	471.2	134.4	74.5	0	584.00	18,447.00
Inflow from cvp 5 almaden valley pl	245.8	94.4	0	828.8	724.8	558.9	0	292.8	959.4	584.00	54,559.50
Outflow to North County Santa Clara Sbb	-292.80	-444.7	0.00	-1,216.00	-873.6	-1030.2	-134.4	-367.3	-959.4	-1,168.00	-73,006.50
Sum	0.00	0	0.00	0.00	0	0	0	0	0	0.00	0.00
Demand Site Inflows and Outflows (Demand Site: Los Capitancillos Ponds) (Acre-	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from Guadalupe Creek	2,141.90	23	2,761.10	1,396.30	1212.6	1,805.50	983.90	1,407.90	1,915.00	2,047.40	181,070.10
Inflow from IPR Guadalupe	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inflow from SWP 4 almaden valley pipeline	46.10	574.1	0.00	407.20	73.7	41.10	0	48.90	0.00	339.30	11,262.10
Inflow from cvp 5 almaden valley pl	95.30	157.3	0.00	933.00	398.20	506.20	0.00	0.00	176.20	408.00	24,880.80
Outflow to North County Santa Clara Sbb	-2,283.30	-754.50	-2,761.10	-2,736.40	-1,684.50	-2,352.90	-983.90	-1,456.80	-2,091.20	-2,794.70	-217,213.10
Sum	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demand Site Inflows and Outflows (Demand Site: Overfelt Ponds) (Acre-foot)	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from IPR Penitencia	0	0	0.00	0	0	0	0	0	0	0	0.00
Inflow from Penitencia Creek	0	0	0.00	0.00	0	0	0	0	0	0	0.00
Inflow from SWP 2 SBA pipeline	450.7	789	1,460.00	1,460.00	957.2	1,422.00	218.8	1062.2	1374.2	1,460.00	109,829.30
Outflow to North County Santa Clara Sbb	-450.7	-789	-1,460.00	-1,460.00	-957.2	-1,422.00	-218.8	-1062.2	-1374.2	-1,460.00	-109,829.30
Sum	0	0	0.00	0.00	0	0.00	0	0	0	0	0.00
Demand Site Inflows and Outflows (Demand Site: Penitencia Ponds) (Acre-foot)	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from IPR Penitencia	0	0	0.00	0	0	0	0	0	0	0	0.00
Inflow from Penitencia Creek	0	0	0.00	0.00	0.00	0	0	0	0	0	0.00
Inflow from SWP 2 SBA pipeline	766.20	1,341.20	2,482.00	2,482.00	1,627.20	2,417.40	372	1805.8	2336.2	2,482.00	186,709.80
Outflow to North County Santa Clara Sbb	-766.20	-1,341.20	-2,482.00	-2,482.00	-1,627.20	-2,417.40	-372.00	-1,805.80	-2,336.20	-2,482.00	-186,709.80
Sum	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission Li	Transmission Li	Transmission Li	Transmission L	Transmission L	Transmission L	Transmission L	Transmission Li	Transmission Li
Transmission Link from Uvas release to Llagas recharge to Church Pond	0	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transmission Link from anderson release to butterfield to Butterfield	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transmission Link from anderson release to madronne to Madrone Ponds	7,888.80	811.2	1,677.50	3,795.00	1,155.50	0	0	1,000.00	1,000.00	3,368.80	228,758.60
Transmission Link from lex pl 1 to Rinconanda WTP	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transmission Link from lex pl 10 to NC IWRP recharge	0	0	0	0	0	0	0	0	0	0	0.00

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	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Transmission Link from lex pl 2 to San Tomas Creek Recharge	0	0	0	0	0	0	0	0	0	0	0.00
Transmission Link from lex pl 3 to Wildcat Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 4 to Saratoga Creek Recharge	0	0	0	0	0	0	0	0	0	0	0.00
Transmission Link from lex pl 5 to Rodeo Creek Recharge	0	0	0	0	0	0	0	0	0	0	0.00
Transmission Link from lex pl 6 to Calabazas Creek Recharge	0	0	0	0	0	0	0	0	0	0	0.00
Transmission Link from lex pl 7 to Regnart Creek Recharge	0	0	0	0	0	0	0	0	0	0	0.00
Transmission Link from lex pl 8 to Mcclellan Pond recharge	0	0	0.00	0	0	0	0	0	0	0	0.00
Transmission Link from lex pl 9 to Stevens Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local 2 coyote pond recharge to Coyote Pond Rec	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transmission Link from local 2 guad creek to Guadalupe creek	5,618.30	7081	7,081.00	7,081.00	7,081.00	6,624.00	2,385.90	5,574.90	6,758.50	7,081.00	566,130.20
Transmission Link from local 2 lower coyote recharge to lower coyote r	1,460.00	468.2	1,417.30	1,460.00	1,092.00	429.50	574.70	856.00	1,092.00	1,460.00	115,420.00
Transmission Link from local 2 overfelt to Overfelt Ponds	0.00	0	0.00	0.00	0.00	0	0	0	0.00	0.00	0.00
Transmission Link from local 2 pen ponds to Penitencia Ponds	0	0	0.00	0	0	0	0	0	0	0	0.00
Transmission Link from local 2 upper coyote to NC Upper Coyote Recharg	171.7	50.4	0.00	159.3	134.9	45.9	64.3	111.3	134.9	171.7	10,106.30
Transmission Link from local Chesbro release to recharge to Church Pon	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transmission Link from local Uvas release to recharge to Uvas Recharge	10,117.80	1,787.30	3,381.80	7,650.70	3,842.20	9,556.80	6,995.30	8,713.50	10,117.80	6,791.40	581,005.60
Transmission Link from local alamitos creek to Alamitos Creek recharge	1,106.50	529.30	2,104.50	1,142.50	1,072.90	1,439.00	737.90	1,183.60	1,482.50	1,452.00	143,740.20
Transmission Link from local anderson 2 coyote ponds to NC Coyote Pond	10,233.10	1,801.90	10,629.50	10,950.00	5,980.80	303.60	782	4,567.90	4,705.10	10,950.00	810,399.50
Transmission Link from local anderson release to main ave ponds to Mai	2,122.80	218.30	451.40	1,021.20	419.90	0	0	451.40	408.60	906.50	62,726.10
Transmission Link from local anderson res to Church Pond and Llagas Re	0.00	0	0	0	0	0	0	0	0	0.00	0.00
Transmission Link from local anderson res to Lower Llagas Recharge	0.00	0	0.00	0	0	0	0	0	0.00	0.00	0.00
Transmission Link from local calabasas creek to Calabazas Creek Rechar	1,149.00	236	1,406.30	141	353	200	50	374.4	1,015.20	1,869.00	72,328.40
Transmission Link from local calero creek to Calero Creek recharge	724.00	912.5	885.80	912.50	912.5	853.60	307.50	718.40	870.90	912.50	72,922.20
Transmission Link from local guadalupe 1 to Los Capitancillos Ponds	2,141.90	23	2,761.10	1,396.30	1212.6	1,805.50	983.90	1,407.90	1,915.00	2,047.40	181,070.10
Transmission Link from local guadaupe 2 to Almaden and Guadalupe Ponds	6,371.30	8030	0.00	7,348.00	8,030.00	7,511.70	2,705.70	6,322.10	7,664.20	8,030.00	476,783.30
Transmission Link from local lg creek diversion to Los Gatos Ck rechar	0.00	261.40	5,669.10	3,634.40	419.00	496.00	53.50	496.00	1,915.40	992.00	260,855.60
Transmission Link from local lg pond diversion to Los Gatos Ponds	4,757.30	3,712.00	0.00	9,877.80	4,740.40	4,341.40	3,231.00	5,346.10	9,581.10	11,023.00	862,419.40
Transmission Link from local lower Llagas recharge to Lower Llagas Rec	2,980.30	294.60	2,415.60	2,502.00	368.20	498.90	1,466.60	4,340.00	6,435.90	4,023.90	321,441.30
Transmission Link from local penitencia creek to Penitencia Creek Rech	1,335.80	164	0	475	334	484	227	410.00	747.00	1,198.00	54,172.50
Transmission Link from local regnart creek to Regnart Creek Recharge	276.70	14	352	15	20	4	1	73.3	189.4	451.70	16,981.70
Transmission Link from local release 2 ford ponds to Ford Pond Recharg	0.00	0.00	0.00	0.00	0.00	0	0	0.00	0.00	0.00	0.00
Transmission Link from local release 2 upper coyote to Coyote Upper Re	15,284.40	1,907.00	11,456.30	15,768.70	5,837.00	514.3	0	6,598.90	7,400.40	14,283.70	1,106,201.70
Transmission Link from local rodeo creek to Rodeo Creek Recharge	67.60	2.00	126.00	2.00	3.00	0	0	16.00	50.00	178.70	5,041.90
Transmission Link from local ross creek recharge to Ross Creek Recharg	863.8	290	1,169.90	487	421	364	364	517	633	888	57,863.00
Transmission Link from local san tomoa creek to San Tomas Creek Rechar	691.4	188.5	790.30	299.1	271.5	170.3	233.9	311.8	388.5	771.9	48,774.30
Transmission Link from local saratoga div to NC IWRP recharge	0.00	0	0.00	0.00	0	0.00	0	0	0.00	0.00	0.00
Transmission Link from local saratogo creek to Saratoga Creek Recharge	2,683.40	648	3,452.70	1,133.00	593	1,203.20	981	958.2	1,846.00	3,512.20	184,922.40
Transmission Link from local silver creek to Silver Creek Recharge	722.40	85	708.60	715.00	331.00	93.00	262.00	58.00	103.00	730.00	53,045.10
Transmission Link from local stevens creek to Stevens Creek Recharge	2,561.20	599.6	3,543.20	3,650.00	2,484.30	1,437.40	1,362.20	2,691.50	3,631.60	3,650.00	273,273.70
Transmission Link from local thompson creek to Thompson Creek Recharge	750.70	47	1,058.00	617.00	362.00	52.00	178.00	32.00	109.00	927.00	54,116.70
Transmission Link from local wildcat creek to Wildcat Creek Recharge	443.50	122.50	513.70	194.40	176.50	110.70	152.10	202.70	252.50	484.10	30,508.00
Sum	82,523.60	30,284.70	63,051.80	82,427.90	47,648.30	38,538.90	24,099.30	53,332.90	70,447.50	88,154.40	6,651,007.60
demand_reduction_fctr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.10	-0.15	0.00	

Strategy C06

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Groundwater Storage (Acre-foot)	Groundwater	Groundwater	Groundwater S	Groundwater S	Groundwater S	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater Storage (Acre-foo	
Coyote Subbasin	19795.5	10001.2	22460.0	22962.1	12070.3	0.0	0.0	0.0	1182.2	23576.9	
LlagasSubbasin	80063.0	116086.2	144334.3	138915.7	122804.5	108855.8	94983.6	91564.7	94476.4	144435.0	
North County Santa Clara Sbb	278073.4	223855.1	335421.1	305358.5	246106.1	223314.6	131359.2	110330.2	120570.0	329804.3	
Sum	377931.9	349942.5	502215.5	467236.4	380981.0	332170.5	226342.8	201894.9	216228.5	497816.2	
Reservoir Storage Volume (Acre-foot)	Reservoir Stor	Reservoir Stor	Reservoir Stora	Reservoir Stora	Reservoir Stora	Reservoir Stor	Reservoir Stor	Reservoir Stor	Reservoir Stor	Reservoir Storage Volume (Acr	
Almaden Reservoir	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	351.0	
Anderson Reservoir	22000.0	22000.0	69388.3	37583.3	21939.3	21954.3	21550.4	22000.0	22000.0	43735.4	
Calero Reservoir	1000.0	693.5	5600.0	1000.0	932.6	1000.0	1000.0	993.9	2233.3	4457.5	
Chesbro Reservoir	500.0	500.0	4586.0	500.0	451.2	451.7	500.0	500.0	1293.4	4586.0	
Coyote Reservoir	1000.0	1000.0	5200.0	5200.0	997.2	993.7	910.4	1000.0	1000.0	5200.0	
Guadalupe Reservoir	200.0	168.9	1188.0	200.0	200.0	200.0	200.0	200.0	200.0	1188.0	
Lexington Reservoir	1475.3	881.9	16000.0	6365.6	1951.7	828.3	297.1	1936.8	4454.7	12781.7	
Pacheco Reservoir	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	
Stevens Creek Reservoir	31.0	181.5	2368.0	513.0	31.0	31.0	31.0	31.0	1459.0	2368.0	
Uvas Reservoir	2703.9	2824.1	5987.7	1490.7	1104.1	557.6	500.0	3963.6	6258.0	6258.0	
cvp caryover	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20330.8	
cvp overflow not used	0.0	46354.0	207523.6	207523.6	207523.6	207523.6	207523.6	207523.6	207523.6	224652.7	
semitropic reservoir	242493.3	254572.2	338631.6	343462.7	305997.0	276282.3	240545.9	202630.2	167668.5	280386.5	
swp caryyover	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15509.4	
swp overflow not used	0.0	1285.8	47086.0	47086.0	47086.0	47086.0	47086.0	47086.0	47086.0	51566.6	
Sum	276603.5	335661.9	708759.3	656125.0	593413.9	562108.5	525344.6	493065.0	466376.6	678371.6	
Groundwater Natural Recharge (Acre-foot)	Groundwater	Groundwater	Groundwater N	Groundwater N	Groundwater N	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater N	Groundwater N
Coyote Subbasin	2535.0	1326.9	5335.0	1838.8	1544.9	1101.9	1457.8	2541.2	3273.6	2141.8	183393.1
LlagasSubbasin	24664.6	19659.9	33521.4	20971.2	20239.6	19330.3	21198.0	22272.2	21962.7	22365.9	1888278.1
North County Santa Clara Sbb	39177.8	26853.8	56312.9	30423.5	26962.8	27176.6	25998.0	24763.5	29247.2	34205.1	2881697.9
Sum	66377.4	47840.6	95169.3	53233.5	48747.3	47608.8	48653.8	49576.9	54483.5	58712.8	4953369.1
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission Li	Transmission Li	Transmission Li	Transmission L	Transmission L	Transmission L	Transmission L	Transmission Li	Transmission Li
Transmission Link from lake elsman to sjw west to SJ Water Company	12613.8	4299.1	20418.8	9472.9	7769.1	10231.8	6494.2	10550.1	8916.9	12852.9	1238454.3
Transmission Link from stanford water to Stanford Moffett Field Ames	823.0	64.0	692.0	187.0	160.0	303.0	174.0	296.0	160.0	681.0	51733.2
Sum	13436.8	4363.1	21110.8	9659.9	7929.1	10534.8	6668.2	10846.1	9076.9	13533.9	1290187.6
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission Li	Transmission Li	Transmission Li	Transmission L	Transmission L	Transmission L	Transmission L	Transmission Li	Transmission Li
Transmission Link from SCRWA to Morgan Hill to Morgan Hill Service Are	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from deliver recycled to gilroy to Gilroy Service Ar	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	131196.6
Transmission Link from hecker pass recycled to Gilroy Service Area	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from morgan hill recycled to Morgan Hill Service Are	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from recycle pa to palo alto to Palo Alto Service Ar	1055.8	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	69136.2
Transmission Link from recycle sv to sunnyvale to Sunnyvale Service Ar	1900.0	2400.0	2400.0	2400.0	2400.0	2400.0	2400.0	2400.0	2400.0	2400.0	196297.1
Transmission Link from recycled 1 to Llagas Ag	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	98400.0
Transmission Link from recycled SB to SJWC to SJ Water Company	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	248874.2
Transmission Link from recycled SB to santa clara to Santa Clara Servi	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	383760.0
Transmission Link from recycled pa to mountain view to Mountain View S	994.2	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	98961.3

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Transmission Link from recycled sb to milpitas to Milpitas Service Are	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	172692.0
Transmission Link from recycled sb to sj muni north to SJ Muni North	9500.4	9839.7	9839.7	9839.7	9839.7	9839.7	9839.7	9839.7	9839.7	9839.7	806516.1
Transmission Link from recycled sb to sjMuni edenvale to SJ Muni servi	4071.6	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	306387.9
Sum	30149.6	30649.5	30649.5	30649.5	30649.5	30649.5	30649.5	30649.5	30649.5	30649.5	2512221.4
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission Li	Transmission Li	Transmission Li	Transmission L	Transmission L	Transmission L	Transmission L	Transmission Li	Transmission Li
Transmission Link from hh to PHills to Purisma Hills Service Area	1828.0	1828.0	1828.0	1828.0	1828.0	1516.0	1516.0	1516.0	1516.0	1828.0	147200.7
Transmission Link from hh to Sunnyvale to Sunnyvale Service Area	13249.0	13249.0	13249.0	13249.0	13249.0	10988.0	10988.0	10988.0	10988.0	13249.0	1066882.9
Transmission Link from hh to milpitas service area to Milpitas Service	8451.0	8451.0	8451.0	8451.0	8451.0	7008.8	7008.8	7008.8	7008.8	8451.0	680521.4
Transmission Link from hh to moffett ames to Stanford Moffett Field Am	3395.0	3395.0	3395.0	3395.0	3395.0	2815.6	2815.6	2815.6	2815.6	3395.0	273384.2
Transmission Link from hh to mountain view to Mountain View Service Ar	14487.4	14407.8	14407.8	14407.8	14407.8	12120.0	12120.0	12101.1	11982.8	14407.8	1160103.4
Transmission Link from hh to palo alto to Palo Alto Service Area	14295.5	14397.2	14397.2	14397.2	14397.2	12121.7	12121.7	12108.8	12004.1	14397.2	1159180.1
Transmission Link from hh to santa clara to Santa Clara Service Area	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from hh to sj muni n to SJ Muni North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sum	55705.9	55728.0	55728.0	55728.0	55728.0	46570.3	46570.3	46538.4	46315.5	55728.0	4487272.7
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission Li	Transmission Li	Transmission Li	Transmission L	Transmission L	Transmission L	Transmission L	Transmission Li	Transmission Li
Transmission Link from local stevens creek flood release to Tributary	0.0	0.0	21563.5	0.0	0.0	0.0	0.0	0.0	642.9	2069.0	341949.2
Transmission Link from local uvas flood release to Tributary Inflow 5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from release from anderson to cvp pl to Anderson PL	420.5	7518.5	60992.8	7299.2	12454.6	970.6	442.7	6355.4	8646.7	6096.3	938601.7
Transmission Link from release from calero to cvp pl to Calero PL rele	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from release from pacheco to Tributary Inflow 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sum	420.5	7518.5	82556.3	7299.2	12454.6	970.6	442.7	6355.4	9289.6	8165.2	1280550.9
Streamflow (below node or reach listed) (All Rivers) (Acre-foot)	Streamflow (b	Streamflow (b	Streamflow (be	Streamflow (be	Streamflow (be	Streamflow (b	Streamflow (b	Streamflow (b	Streamflow (b	Streamflow (be	Streamflow (be
SWP 1 Supply 0 \ Headflow	61999.1	10999.8	96998.6	29999.6	29999.6	56999.2	21999.7	27999.6	23999.6	63999.1	4939927.4
cvp 0 source supply 0 \ Headflow	121128.4	69175.9	152497.8	94555.5	64999.0	100323.6	64999.0	75023.6	81706.6	108114.6	8991576.1
Demand Site Inflows and Outflows (Demand Site: NC Coyote Pond Recharge) (Ac	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from IPR Coyote	0.0	4999.9	4999.9	4999.9	4999.9	4999.9	4999.9	4999.9	4999.9	4999.9	404994.0
Inflow from Lower Coyote Creek	10233.1	230.0	475.1	475.1	355.3	98.4	156.2	273.0	340.9	475.1	47232.0
Inflow from cvp 3 santa clara conduit	390.4	0.0	0.0	0.0	0.0	40.3	0.0	0.0	0.0	0.0	468.3
Outflow to North County Santa Clara Sbb	-10623.5	-5230.0	-5475.0	-5475.0	-5355.3	-5138.7	-5156.1	-5272.9	-5340.9	-5475.0	-452694.3
Sum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Demand Site Inflows and Outflows (Demand Site: Ford Pond Recharge) (Acre-foo	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from IPR Coyote	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Inflow from Lower Coyote Creek	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Outflow to North County Santa Clara Sbb	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Demand Site Inflows and Outflows (Demand Site: Los Gatos Ponds) (Acre-foot)	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from IPR LG Ponds	0.0	19999.7	0.0	18301.1	19999.7	19999.7	19999.7	19999.7	19999.7	19999.7	1188092.1
Inflow from Los Gatos Creek	4757.3	713.7	0.0	3475.7	1132.9	733.9	406.7	959.7	2865.1	2612.5	190299.4
Inflow from SWP 3 central pipeline	0.0	0.0	0.0	0.0	0.0	0.0	0.0	120.8	0.0	0.0	120.8
Inflow from cvp 7 central pl	16843.6	551.5	0.0	0.0	834.8	3064.4	0.0	1156.5	778.6	1185.8	45619.7

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Outflow to North County Santa Clara Sbb	-21600.9	-21264.9	0.0	-21776.8	-21967.4	-23798.0	-20406.4	-22236.6	-23643.4	-23798.0	-1424132.1
Sum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Demand Site Inflows and Outflows (Demand Site: Almaden and Guadalupe Pond	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from Guadalupe Creek	6,371.30	385.6	0.00	3,370.70	1,644.20	3,113.80	2,701.40	5,176.90	6,079.70	6,259.10	369,253.70
Inflow from IPR Guadalupe	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inflow from SWP 4 almaden valley pipeline	126.80	432.70	0.00	1,424.40	403.50	0.00	0.00	0.00	0.00	667.30	16,515.40
Inflow from cvp 5 almaden valley pl	262.10	432.70	0.00	1,569.30	432.70	6.30	0.00	0.00	0.00	680.40	39,710.60
Outflow to North County Santa Clara Sbb	-6,760.20	-1,250.90	0.00	-6,364.40	-2,480.40	-3,120.20	-2,701.40	-5,176.90	-6,079.70	-7,606.90	-425,479.60
Sum	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demand Site Inflows and Outflows (Demand Site: Kooser) (Acre-foot)	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from IPR Guadalupe	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inflow from SWP 4 almaden valley pipeline	47.00	94.4	0.00	534.40	144	0	0	0	0	584.00	16,539.30
Inflow from cvp 5 almaden valley pl	245.8	94.40	0	534.4	144	150.2	0	292.8	576	584.00	47,857.60
Outflow to North County Santa Clara Sbb	-292.80	-188.80	0.00	-1,068.80	-288.00	-150.20	0.00	-292.80	-576.00	-1,168.00	-64,396.80
Sum	0.00	0	0.00	0.00	0	0	0	0	0	0.00	0.00
Demand Site Inflows and Outflows (Demand Site: Los Capitancillos Ponds) (Acre-	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from Guadalupe Creek	2,141.90	23	2,706.30	1,149.70	597.9	1,132.30	982.30	1,365.50	1,681.70	1,982.40	169,059.50
Inflow from IPR Guadalupe	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inflow from SWP 4 almaden valley pipeline	46.10	157.3	0.00	600.90	146.7	0.00	0	0.00	0.00	339.30	12,464.90
Inflow from cvp 5 almaden valley pl	95.30	157.30	0.00	653.30	157.30	2.30	0.00	0.00	0.00	408.00	26,318.60
Outflow to North County Santa Clara Sbb	-2,283.30	-337.70	-2,706.30	-2,403.90	-902.00	-1,134.60	-982.30	-1,365.50	-1,681.70	-2,729.60	-207,843.00
Sum	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demand Site Inflows and Outflows (Demand Site: Overfelt Ponds) (Acre-foot)	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from IPR Penitencia	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inflow from Penitencia Creek	0	0	0.00	0.00	0	0	0	0	0	0	0.00
Inflow from SWP 2 SBA pipeline	450.7	264.80	1,460.00	1,460.00	508.40	967.60	57.7	381.30	526.50	1,460.00	104,941.40
Outflow to North County Santa Clara Sbb	-450.7	-264.80	-1,460.00	-1,460.00	-508.40	-967.60	-57.70	-381.30	-526.50	-1,460.00	-104,941.40
Sum	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Penitencia Ponds) (Acre-foot)	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from IPR Penitencia	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inflow from Penitencia Creek	0	0	0.00	0.00	0.00	0	0	0	0	0	0.00
Inflow from SWP 2 SBA pipeline	766.20	450.20	2,482.00	2,482.00	864.30	1,644.90	98.1	648.10	895.10	2,482.00	178,400.40
Outflow to North County Santa Clara Sbb	-766.20	-450.20	-2,482.00	-2,482.00	-864.30	-1,644.90	-98.10	-648.10	-895.10	-2,482.00	-178,400.40
Sum	0	0	0	0	0	0	0	0	0	0	0
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission Li	Transmission Li	Transmission Li	Transmission L	Transmission L	Transmission L	Transmission L	Transmission Li	Transmission Li
Transmission Link from Uvas release to Llagas recharge to Church Pond	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from anderson release to butterfield to Butterfield	0.00	0	0.00	0.00	0.00	0	0	0.00	0.00	0.00	0.00
Transmission Link from anderson release to madronne to Madrone Ponds	7,888.80	1295	1,677.50	3,368.80	852.50	0	0	1,000.00	1,185.30	3,368.80	236,579.90
Transmission Link from lex pl 1 to Rinconanda WTP	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transmission Link from lex pl 10 to NC IWRP recharge	0	0	0	0	0	0	0	0	0	0	0.00

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Transmission Link from lex pl 2 to San Tomas Creek Recharge	0	0	0	0	0	0	0	0	0	0	0.00
Transmission Link from lex pl 3 to Wildcat Creek Recharge	0	0	0	0	0	0	0	0	0	0	0.00
Transmission Link from lex pl 4 to Saratoga Creek Recharge	0	0	0	0	0	0	0	0	0	0	0.00
Transmission Link from lex pl 5 to Rodeo Creek Recharge	0	0	0	0	0	0	0	0	0	0	0.00
Transmission Link from lex pl 6 to Calabazas Creek Recharge	0	0	0	0	0	0	0	0	0	0	0.00
Transmission Link from lex pl 7 to Regnart Creek Recharge	0	0	284.6	0	0	0	0	0	88.3	49.3	10,538.20
Transmission Link from lex pl 8 to Mcclellan Pond recharge	0	0	1,418.80	0	0	0	0	0	483	148.8	46,848.40
Transmission Link from lex pl 9 to Stevens Creek Recharge	0	0	175.4	0	0	0	0	0	0	0	348.80
Transmission Link from local 2 coyote pond recharge to Coyote Pond Rec	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transmission Link from local 2 guad creek to Guadalupe creek	5,618.30	340	7,081.00	3,573.70	1,449.90	2,745.80	2,382.20	4,565.10	5,361.20	5,519.40	477,723.70
Transmission Link from local 2 lower coyote recharge to lower coyote r	1,460.00	746.2	1,389.90	1,460.00	1,092.00	429.5	574.7	856	1,092.00	1,460.00	115,580.70
Transmission Link from local 2 overfelt to Overfelt Ponds	0	0	0.00	0	0	0	0	0	0	0	0.00
Transmission Link from local 2 pen ponds to Penitencia Ponds	0	0	0.00	0	0	0	0	0	0	0	0.00
Transmission Link from local 2 upper coyote to NC Upper Coyote Recharg	171.7	86.5	0	159.3	134.9	45.9	64.3	111.3	134.9	171.7	9,936.80
Transmission Link from local Chesbro release to recharge to Church Pon	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transmission Link from local Uvas release to recharge to Uvas Recharge	10,117.80	1,787.30	3,381.80	6,791.40	4,672.50	9,556.80	6,995.30	8,713.50	10,117.80	6,791.40	591,413.50
Transmission Link from local alamitos creek to Alamitos Creek recharge	1,106.50	101.70	2,063.40	887.20	447.00	849.20	736.80	1,042.90	1,405.70	1,305.10	131,847.40
Transmission Link from local anderson 2 coyote ponds to NC Coyote Pond	10,233.10	230.00	475.10	475.10	355.30	98.4	156.2	273.00	340.90	475.10	47,232.00
Transmission Link from local anderson release to main ave ponds to Mai	2,122.80	463.2	451.4	906.50	344.1	0	0	479.4	484.4	906.50	64,906.60
Transmission Link from local anderson res to Church Pond and Llagas Re	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local anderson res to Lower Llagas Recharge	0.00	0	0.00	0	0	0	0	0	0.00	0.00	0.00
Transmission Link from local calabasas creek to Calabazas Creek Rechar	1,149.00	236	1,376.20	141	353	200	50	374.4	1,015.20	1,869.00	72,242.80
Transmission Link from local calero creek to Calero Creek recharge	724.00	43	868.70	460.50	186.8	353.80	307.00	588.30	689.00	711.30	61,312.30
Transmission Link from local guadalupe 1 to Los Capitancillos Ponds	2,141.90	23	2,706.30	1,149.70	597.9	1,132.30	982.30	1,365.50	1,681.70	1,982.40	169,059.50
Transmission Link from local guadaupe 2 to Almaden and Guadalupe Ponds	6,371.30	385.6	0.00	3,370.70	1,644.20	3,113.80	2,701.40	5,176.90	6,079.70	6,259.10	369,253.70
Transmission Link from local lg creek diversion to Los Gatos Ck rechar	0.00	698.90	5,559.40	5,050.40	593.20	496.00	276.40	692.10	2,774.40	3,221.80	376,577.30
Transmission Link from local lg pond diversion to Los Gatos Ponds	4,757.30	713.70	0.00	3,475.70	1,132.90	733.90	406.70	959.70	2,865.10	2,612.50	190,299.40
Transmission Link from local lower Llagas recharge to Lower Llagas Rec	2,980.30	294.6	2,415.60	2,462.80	368.2	498.9	1,466.60	4,340.00	6,435.90	4,023.90	331,139.80
Transmission Link from local penitencia creek to Penitencia Creek Rech	1,335.80	164	0	579	334	484	227	410	747	1,198.00	52,919.40
Transmission Link from local regnart creek to Regnart Creek Recharge	276.7	14	349.3	15	20	4	1	73.3	189.4	451.7	16,972.60
Transmission Link from local release 2 ford ponds to Ford Pond Recharg	0.00	0.00	0.00	0.00	0.00	0	0	0.00	0.00	0.00	0.00
Transmission Link from local release 2 upper coyote to Coyote Upper Re	15,284.40	2,455.20	11,511.70	15,768.70	4,229.20	38.6	0	7,661.70	8,430.80	15,768.70	1,091,806.20
Transmission Link from local rodeo creek to Rodeo Creek Recharge	67.6	2	126.00	2	3	0	0	16	50	178.7	5,041.90
Transmission Link from local ross creek recharge to Ross Creek Recharg	863.8	290	1,145.50	487	421	364	364	517	633	888	57,766.30
Transmission Link from local san tomoa creek to San Tomas Creek Rechar	691.4	188.5	769.8	299.1	271.5	170.3	233.9	311.8	388.5	771.9	48,702.30
Transmission Link from local saratoga div to NC IWRP recharge	0.00	0	0.00	0.00	0	0.00	0	0	0.00	0.00	0.00
Transmission Link from local saratogo creek to Saratoga Creek Recharge	2,683.40	648	3,355.40	1,133.00	593	1,203.20	981	958.2	1,846.00	3,512.20	184,581.70
Transmission Link from local silver creek to Silver Creek Recharge	722.40	85	694.90	715.00	331.00	93.00	262.00	58.00	103.00	730.00	52,997.10
Transmission Link from local stevens creek to Stevens Creek Recharge	2,561.20	597.7	3,474.60	3,650.00	2,422.40	1,437.40	1,362.20	2,691.50	3,631.60	3,650.00	272,371.80
Transmission Link from local thompson creek to Thompson Creek Recharge	750.7	47	1,037.40	617	362	52	178	32	109	927	54,044.70
Transmission Link from local wildcat creek to Wildcat Creek Recharge	443.50	122.50	500.30	194.40	176.50	110.70	152.10	202.70	252.50	484.10	30,461.20
Sum	82,523.60	12,058.70	54,290.00	57,193.10	23,388.10	24,211.80	20,861.00	43,470.10	58,615.30	69,436.20	5,170,506.00
demand_reduction_fctr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.10	-0.15	0.00	

Strategy C07

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Groundwater Storage (Acre-foot)	Groundwater S	Groundwater S	Groundwater S	Groundwater S	Groundwater S	Groundwater S	Groundwater S	Groundwater S	Groundwater S	Groundwater Storage (Acre-foo	
Coyote Subbasin	19,796	11,238	22,592	21,514	14,824	1,320	0	70	1,182	22,991	
LlagasSubbasin	80,089	118,942	145,349	134,937	127,510	121,787	116,148	117,899	125,592	142,661	
North County Santa Clara Sbb	277,882	279,870	332,281	302,549	262,730	240,051	150,300	113,135	124,080	324,101	
Sum	377,766	410,051	500,223	459,000	405,064	363,158	266,448	231,104	250,855	489,753	
Reservoir Storage Volume (Acre-foot)	Reservoir Stor	Reservoir Stor	Reservoir Stora	Reservoir Stora	Reservoir Stora	Reservoir Stor	Reservoir Stor	Reservoir Stor	Reservoir Stor	Reservoir Storage Volume (Acr	
Almaden Reservoir	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00	351.00	
Anderson Reservoir	22,000.00	22,000.00	69,388.30	39,624.00	21,939.30	21,954.30	21,550.40	22,000.00	22,000.00	42,479.00	
Calero Reservoir	1,000.00	689.8	5,600.00	1,000.00	932.6	1,000.00	1,000.00	993.90	2,233.30	4,457.50	
Chesbro Reservoir	500	500	4,586.00	500	436.5	451.70	500.00	500.00	1,293.40	4,586.00	
Coyote Reservoir	1,000.00	1,000.00	5,200.00	5,200.00	997.20	993.7	910.4	1,000.00	1,000.00	5,200.00	
Guadalupe Reservoir	200.00	168.90	1,188.00	200.00	200.00	200.00	200.00	200.00	200.00	1,188.00	
Lexington Reservoir	1,475.30	243.6	7,449.90	1,291.90	428.00	184.00	115.10	789.50	1,504.70	5,318.90	
Pacheco Reservoir	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	
Stevens Creek Reservoir	31.00	181.50	2,368.00	583.6	31.00	31	31	31.00	1,609.50	2,368.00	
Uvas Reservoir	2,703.90	2,824.10	5,987.70	732.80	1,104.10	557.60	500.00	3,963.60	6,258.00	6,258.00	
cvp caryover	0.00	0.00	0.00	29,418.00	0.00	0.00	0.00	0.00	0.00	39,894.10	
cvp overflow not used	0.00	310,883.60	559,329.50	559,329.50	559,329.50	559,329.50	559,329.50	559,329.50	559,329.50	655,690.00	
semitropic reservoir	242,688.10	336,026.10	350,000.00	350,000.00	333,309.10	305,740.50	270,004.00	236,086.50	207,823.10	349,727.90	
swp caryyover	0.00	0.00	0.00	15,202.80	0.00	0.00	0.00	0.00	0.00	26,521.20	
swp overflow not used	0.00	116,407.30	272,586.00	272,586.00	272,586.00	272,586.00	272,586.00	272,586.00	272,586.00	277,583.00	
Sum	276,798.30	796,124.90	1,288,883.40	1,280,868.50	1,196,493.40	1,168,228.40	1,131,926.60	1,102,680.00	1,081,037.50	1,426,622.60	
Groundwater Natural Recharge (Acre-foot)	Groundwater N	Groundwater N	Groundwater N	Groundwater N	Groundwater N	Groundwater N	Groundwater N	Groundwater N	Groundwater N	Groundwater N	Groundwater N
Coyote Subbasin	2,535.00	1,326.90	5,335.00	1,838.80	1,544.90	1,101.90	1,457.80	2,541.20	3,273.60	2,141.80	183,393.10
LlagasSubbasin	24,664.60	19,659.90	33,521.40	20,971.20	20,239.60	19,330.30	21,198.00	22,272.20	21,962.70	22,365.90	1,888,278.10
North County Santa Clara Sbb	39,177.80	26,853.80	56,312.90	30,423.50	26,962.80	27,176.60	25,998.00	24,763.50	29,247.20	34,205.10	2,881,697.90
Sum	66,377.40	47,840.60	95,169.30	53,233.50	48,747.30	47,608.80	48,653.80	49,576.90	54,483.50	58,712.80	4,953,369.10
Transmission Link Flow (Acre-foot)	Transmission I	Transmission I	Transmission L	Transmission L	Transmission L	Transmission I	Transmission I	Transmission I	Transmission I	Transmission L	Transmission L
Transmission Link from lake elsman to sjw west to SJ Water Company	12,613.80	1,362.00	14,943.80	3,997.90	3,455.90	6,503.90	3,720.90	6,431.90	3,455.90	7,405.90	815,457.00
Transmission Link from stanford water to Stanford Moffett Field Ames	823.00	64.00	692.00	187.00	160.00	303.00	174.00	296.00	160.00	681.00	51,733.20
Sum	13,436.80	1,426.00	15,635.80	4,184.90	3,615.90	6,806.90	3,894.90	6,727.90	3,615.90	8,086.90	867,190.30
Transmission Link Flow (Acre-foot)	Transmission I	Transmission I	Transmission L	Transmission L	Transmission L	Transmission I	Transmission I	Transmission I	Transmission I	Transmission L	Transmission L
Transmission Link from SCRWA to Morgan Hill to Morgan Hill Service Are	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transmission Link from deliver recycled to gilroy to Gilroy Service Ar	1,600.00	1,600.00	1,600.00	1,600.00	1,600.00	1,600.00	1,600.00	1,600.00	1,600.00	1,600.00	131,196.60
Transmission Link from hecker pass recycled to Gilroy Service Area	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transmission Link from morgan hill recycled to Morgan Hill Service Are	0	0	0	0	0	0	0	0	0	0	0.00
Transmission Link from recycle pa to palo alto to Palo Alto Service Ar	1,055.70	840.50	840.50	840.50	840.50	840.50	840.50	840.50	840.50	840.50	69,136.20
Transmission Link from recycle sv to sunnyvale to Sunnyvale Service Ar	1,900.00	2,400.00	2,400.00	2,400.00	2,400.00	2,400.00	2,400.00	2,400.00	2,400.00	2,400.00	196,297.10
Transmission Link from recycled 1 to Llagas Ag	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	98,400.00
Transmission Link from recycled SB to SJWC to SJ Water Company	3,041.70	3,041.70	3,041.70	3,041.70	3,041.70	3,041.70	3,041.70	3,041.70	3,041.70	3,041.70	249,415.80
Transmission Link from recycled SB to santa clara to Santa Clara Servi	4,680.00	4,680.00	4,680.00	4,680.00	4,680.00	4,680.00	4,680.00	4,680.00	4,680.00	4,680.00	383,760.00
Transmission Link from recycled pa to mountain view to Mountain View S	994.20	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	98,961.30

Strategy C07

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Transmission Link from recycled sb to milpitas to Milpitas Service Are	2,106.00	2,106.00	2,106.00	2,106.00	2,106.00	2,106.00	2,106.00	2,106.00	2,106.00	2,106.00	172,692.00
Transmission Link from recycled sb to sj muni north to SJ Muni North	9,500.40	9,839.70	9,839.70	9,839.70	9,839.70	9,839.70	9,839.70	9,839.70	9,839.70	9,839.70	806,516.10
Transmission Link from recycled sb to sjMuni edenvale to SJ Muni servi	4,071.60	3,732.30	3,732.30	3,732.30	3,732.30	3,732.30	3,732.30	3,732.30	3,732.30	3,732.30	306,387.90
Sum	30,149.60	30,649.50	30,649.50	30,649.50	30,649.50	30,649.50	30,649.50	30,649.50	30,649.50	30,649.50	2,512,763.10
Transmission Link Flow (Acre-foot)	Transmission I	Transmission I	Transmission L	Transmission L	Transmission L	Transmission I	Transmission I	Transmission I	Transmission I	Transmission L	Transmission L
Transmission Link from hh to PHills to Purisma Hills Service Area	1,828.00	1,828.00	1,828.00	1,828.00	1,828.00	1,516.00	1,516.00	1,516.00	1,516.00	1,828.00	147,200.70
Transmission Link from hh to Sunnyvale to Sunnyvale Service Area	13,249.00	13,249.00	13,249.00	13,249.00	13,249.00	10,988.00	10,988.00	10,988.00	10,988.00	13,249.00	1,066,882.90
Transmission Link from hh to milpitas service area to Milpitas Service	8,451.00	8,451.00	8,451.00	8,451.00	8,451.00	7,008.80	7,008.80	7,008.80	7,008.80	8,451.00	680,521.40
Transmission Link from hh to moffett ames to Stanford Moffett Field Am	3,395.00	3,395.00	3,395.00	3,395.00	3,395.00	2,815.60	2,815.60	2,815.60	2,815.60	3,395.00	273,384.20
Transmission Link from hh to mountain view to Mountain View Service Ar	14,487.40	14,407.80	14,407.80	14,407.80	14,407.80	12,120.00	12,120.00	12,120.00	11,982.80	14,407.80	1,160,716.20
Transmission Link from hh to palo alto to Palo Alto Service Area	14,295.50	14,397.20	14,397.20	14,397.20	14,397.20	12,121.70	12,121.70	12,121.70	12,004.10	14,397.20	1,159,776.50
Transmission Link from hh to santa clara to Santa Clara Service Area	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transmission Link from hh to sj muni n to SJ Muni North	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sum	55,705.90	55,728.00	55,728.00	55,728.00	55,728.00	46,570.30	46,570.30	46,570.30	46,315.50	55,728.00	4,488,481.90
Transmission Link Flow (Acre-foot)	Transmission I	Transmission I	Transmission L	Transmission L	Transmission L	Transmission I	Transmission I	Transmission I	Transmission I	Transmission L	Transmission L
Transmission Link from local stevens creek flood release to Tributary	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local uvas flood release to Tributary Inflow 5	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from release from anderson to cvp pl to Anderson PL	420.50	6,410.80	60,252.20	7,299.20	6,939.80	341.00	152.20	4,978.30	6,132.30	6,096.30	893,652.40
Transmission Link from release from calero to cvp pl to Calero PL rele	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transmission Link from release from pacheco to Tributary Inflow 6	0	0	0	0	0	0	0	0	0	0	0
Sum	420.5	6,410.80	60,252.20	7,299.20	6,939.80	341	152.2	4,978.30	6,132.30	6,096.30	893,652.40
Streamflow (below node or reach listed) (All Rivers) (Acre-foot)	Streamflow (be	Streamflow (be	Streamflow (bel	Streamflow (be	Streamflow (bel	Streamflow (be	Streamflow (be	Streamflow (be	Streamflow (be	Streamflow (be	Streamflow (bel
SWP 1 Supply 0 \ Headflow	61,999.10	10,999.80	96,998.60	29,999.60	29,999.60	56,999.20	21,999.70	27,999.60	23,999.60	63,999.10	4,939,927.40
cvp 0 source supply 0 \ Headflow	121,128.40	69,175.90	152,497.80	94,555.50	64,999.00	100,323.60	64,999.00	75,023.60	81,706.60	108,114.60	8,991,576.10
Demand Site Inflows and Outflows (Demand Site: NC Coyote Pond Recharge) (Ac	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from IPR Coyote	0	4,999.90	4,999.90	4,999.90	4,999.90	4,999.90	4,999.90	4,999.90	4,999.90	4,999.90	404,994.00
Inflow from Lower Coyote Creek	10,233.10	196.50	475.10	475.10	316.30	59.3	156.2	199.10	235.60	475.10	46,941.20
Inflow from cvp 3 santa clara conduit	198.8	40.3	0	0	0	0	0	0	40.3	0	279.50
Outflow to North County Santa Clara Sbb	-10,431.90	-5,236.80	-5,475.00	-5,475.00	-5,316.20	-5,059.30	-5,156.10	-5,199.10	-5,275.90	-5,475.00	-452,214.70
Sum	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Ford Pond Recharge) (Acre-foo	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from IPR Coyote	0	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inflow from Lower Coyote Creek	0.00	0	0	0	0	0	0	0	0	0	0.00
Outflow to North County Santa Clara Sbb	0	0	0	0	0	0	0	0	0	0	0
Sum	0.00	0	0	0	0	0	0	0	0	0	0.00
Demand Site Inflows and Outflows (Demand Site: Los Gatos Ponds) (Acre-foot)	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from IPR LG Ponds	0	19,999.70	0	18,465.50	19,999.70	19,999.70	19,999.70	19,999.70	19,999.70	19,999.70	1,288,035.90
Inflow from Los Gatos Creek	4,757.30	0.00	0.00	0.00	0.00	0.00	0.00	322.60	291.40	322.60	36,822.40
Inflow from SWP 3 central pipeline	0	322.6	0	0	476.5	0	703.3	444.8	310.5	0.00	3,904.20
Inflow from cvp 7 central pl	16,843.60	3,475.70	0.00	3,506.90	2,675.30	3,798.30	0	2,083.30	2,873.90	3,475.70	213,644.10

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Outflow to North County Santa Clara Sbb	-21,600.90	-23,798.00	0.00	-21,972.40	-23,151.50	-23,798.00	-20,703.00	-22,850.40	-23,475.40	-23,798.00	-1,542,406.50
Sum	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demand Site Inflows and Outflows (Demand Site: Almaden and Guadalupe Ponds	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from Guadalupe Creek	6,371.30	385.6	0.00	3,125.80	1,644.20	3,113.80	2,701.40	5,176.90	6,079.70	6,259.10	404,314.30
Inflow from IPR Guadalupe	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inflow from SWP 4 almaden valley pipeline	255.5	1,327.30	0	1,122.00	850.9	9.7	0	0	0	667.3	19,819.30
Inflow from cvp 5 almaden valley pl	133.4	4,025.80	0	2,175.90	2,126.70	0.00	0.00	0.00	0	680.40	51,980.90
Outflow to North County Santa Clara Sbb	-6,760.20	-5,738.70	0.00	-6,423.70	-4,621.80	-3,123.60	-2,701.40	-5,176.90	-6,079.70	-7,606.90	-476,114.50
Sum	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demand Site Inflows and Outflows (Demand Site: Kooser) (Acre-foot)	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from IPR Guadalupe	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 4 almaden valley pipeline	94.6	289.6	0	441.6	241.6	151.9	0	0	0	584	21,878.80
Inflow from cvp 5 almaden valley pl	198.2	880	0	734.4	534.4	0	0	292.8	576	584.00	53,689.60
Outflow to North County Santa Clara Sbb	-292.80	-1,169.60	0.00	-1,176.00	-776	-151.9	0	-292.8	-576	-1,168.00	-75,568.40
Sum	0.00	0.00	0.00	0.00	0.00	0	0	0.00	0.00	0.00	0.00
Demand Site Inflows and Outflows (Demand Site: Los Capitancillos Ponds) (Acre-	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from Guadalupe Creek	2,141.90	23	2,686.40	1,111.40	597.9	1,132.30	982.3	1,365.50	1,681.70	1,982.40	167,401.90
Inflow from IPR Guadalupe	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inflow from SWP 4 almaden valley pipeline	92.9	482.7	0	495.1	309.4	3.5	0	0	0	339.3	14,696.80
Inflow from cvp 5 almaden valley pl	48.5	1,466.70	0	953.4	773.3	0	0	0	0	408	31,429.40
Outflow to North County Santa Clara Sbb	-2,283.30	-1,972.30	-2,686.40	-2,559.90	-1,680.60	-1,135.90	-982.3	-1,365.50	-1,681.70	-2,729.60	-213,528.20
Sum	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demand Site Inflows and Outflows (Demand Site: Overfelt Ponds) (Acre-foot)	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from IPR Penitencia	0	0	0	0	0	0	0	0	0	0	0
Inflow from Penitencia Creek	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 2 SBA pipeline	450.7	1,344.10	1,460.00	1,460.00	962.4	1,042.60	75.5	471.1	655.9	1,460.00	108,808.90
Outflow to North County Santa Clara Sbb	-450.7	-1,344.10	-1,460.00	-1,460.00	-962.4	-1,042.60	-75.5	-471.1	-655.9	-1,460.00	-108,808.90
Sum	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Penitencia Ponds) (Acre-foot)	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site In
Inflow from IPR Penitencia	0	0	0	0	0	0	0	0	0	0	0
Inflow from Penitencia Creek	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 2 SBA pipeline	766.2	2,285.00	2,482.00	2,482.00	1,636.20	1,772.30	128.4	800.9	1,115.00	2,482.00	184,975.20
Outflow to North County Santa Clara Sbb	-766.2	-2,285.00	-2,482.00	-2,482.00	-1,636.20	-1,772.30	-128.4	-800.9	-1,115.00	-2,482.00	-184,975.20
Sum	0	0	0	0	0	0	0	0	0	0	0
Transmission Link Flow (Acre-foot)	Transmission I	Transmission I	Transmission L	Transmission L	Transmission L	Transmission I	Transmission I	Transmission I	Transmission I	Transmission L	Transmission L
Transmission Link from Uvas release to Llagas recharge to Church Pond	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from anderson release to butterfield to Butterfield	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from anderson release to madronne to Madrone Ponds	8,238.20	2,504.50	1,677.50	3,006.00	3,068.90	611.2	228.9	2,314.00	3,139.20	3,368.80	246,923.60
Transmission Link from lex pl 1 to Rinconanda WTP	0	2,959.60	43,586.50	10,995.60	2,864.00	4,251.10	2,994.10	5,890.50	12,252.90	11,164.80	1,450,278.00
Transmission Link from lex pl 10 to NC IWRP recharge	0	0	136.4	0	0	0	0	0	0	249.3	6,659.50

Strategy C07

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Transmission Link from lex pl 2 to San Tomas Creek Recharge	0	0	60.1	0	0	0	0	0	0	54.2	1,149.80
Transmission Link from lex pl 3 to Wildcat Creek Recharge	0	0	39	0	0	0	0	0	0	35.2	824.3
Transmission Link from lex pl 4 to Saratoga Creek Recharge	0	0	478	0	0	0	0	0	0	353.9	9,740.80
Transmission Link from lex pl 5 to Rodeo Creek Recharge	0	0	459.9	0	0	0	0	68.9	47.7	80.9	11,271.80
Transmission Link from lex pl 6 to Calabazas Creek Recharge	0	0	483.2	0	0	0	0	0	0	106.4	9,155.70
Transmission Link from lex pl 7 to Regnart Creek Recharge	0	0	168	0	0	0	0	0	0	49.3	3,737.10
Transmission Link from lex pl 8 to Mcclellan Pond recharge	0	0	1,017.60	64.7	0	0	0	148.8	134.4	148.8	26,175.60
Transmission Link from lex pl 9 to Stevens Creek Recharge	0	0	200.3	0	0	0	0	0	0	0	200.3
Transmission Link from local 2 coyote pond recharge to Coyote Pond Rec	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local 2 guad creek to Guadalupe creek	5,618.30	340	7,081.00	3,299.60	1,449.90	2,745.80	2,382.20	4,565.10	5,361.20	5,519.40	472,823.60
Transmission Link from local 2 lower coyote recharge to lower coyote r	1,460.00	941.8	1,379.90	1,460.00	1,072.40	405.8	574.7	796.7	1,002.20	1,460.00	115,652.10
Transmission Link from local 2 overfelt to Overfelt Ponds	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local 2 pen ponds to Penitencia Ponds	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local 2 upper coyote to NC Upper Coyote Recharg	171.7	114.2	0	160.5	132.4	43	64.3	103.2	123.8	171.7	10,804.90
Transmission Link from local Chesbro release to recharge to Church Pon	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local Uvas release to recharge to Uvas Recharge	10,117.80	1,787.30	3,381.80	7,650.70	4,059.60	9,556.80	6,995.30	8,713.50	10,117.80	6,791.40	551,590.80
Transmission Link from local alamitos creek to Alamitos Creek recharge	1,106.50	101.7	2,048.50	868	447	849.2	736.8	1,042.90	1,405.70	1,305.10	130,470.10
Transmission Link from local anderson 2 coyote ponds to NC Coyote Pond	10,233.10	196.50	475.10	475.10	316.30	59.3	156.2	199.10	235.60	475.10	46,941.20
Transmission Link from local anderson release to main ave ponds to Mai	2,216.80	654.4	902.8	765	786.8	164.5	61.6	598.3	810.6	1,813.00	114,801.90
Transmission Link from local anderson res to Church Pond and Llagas Re	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local anderson res to Lower Llagas Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local calabasas creek to Calabazas Creek Rechar	1,149.00	236	1,365.60	141	353	200	50	374.4	1,015.20	1,869.00	72,297.90
Transmission Link from local calero creek to Calero Creek recharge	724	43	862.4	425.2	186.8	353.8	307	588.3	689	711.3	60,724.90
Transmission Link from local guadalupe 1 to Los Capitancillos Ponds	2,141.90	23	2,686.40	1,111.40	597.9	1,132.30	982.3	1,365.50	1,681.70	1,982.40	167,401.90
Transmission Link from local guadaupe 2 to Almaden and Guadalupe Ponds	6,371.30	385.6	0.00	3,125.80	1,644.20	3,113.80	2,701.40	5,176.90	6,079.70	6,259.10	404,314.30
Transmission Link from local lg creek diversion to Los Gatos Ck rechar	0	0	3,071.60	215.50	0	0	0	496	448.00	496	86,931.50
Transmission Link from local lg pond diversion to Los Gatos Ponds	4,757.30	0.00	0.00	0.00	0.00	0.00	0.00	322.60	291.40	322.60	36,822.40
Transmission Link from local lower Llagas recharge to Lower Llagas Rec	2,980.30	294.6	2,415.60	2,502.00	383	484.2	1,466.60	4,340.00	6,435.90	4,023.90	312,663.50
Transmission Link from local penitencia creek to Penitencia Creek Rech	1,335.80	164	0	485	334	484	227	410	747	1,198.00	59,342.40
Transmission Link from local regnart creek to Regnart Creek Recharge	276.7	14	347.6	15	20	4	1	73.3	189.4	451.7	16,977.30
Transmission Link from local release 2 ford ponds to Ford Pond Recharg	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local release 2 upper coyote to Coyote Upper Re	14,869.70	2,455.20	10,228.70	14,050.10	8,430.80	0	0	7,813.10	8,357.90	14,283.70	1,090,429.20
Transmission Link from local rodeo creek to Rodeo Creek Recharge	67.6	2	126	2	3	0	0	16	50	178.7	5,041.90
Transmission Link from local ross creek recharge to Ross Creek Recharg	863.8	290	1,136.90	487	421	364	364	517	633	888	57,830.00
Transmission Link from local san tomoa creek to San Tomas Creek Rechar	691.4	188.5	762.3	299.1	271.5	170.3	233.9	311.8	388.5	771.9	48,753.50
Transmission Link from local saratoga div to NC IWRP recharge	0	267.8	2,365.50	468.2	245	519	405.4	524	1,050.20	2,004.90	104,542.90
Transmission Link from local saratogo creek to Saratoga Creek Recharge	2,683.40	380.2	3,074.60	664.80	348	737.00	575.6	744.1	1,491.30	2,847.00	150,849.90
Transmission Link from local silver creek to Silver Creek Recharge	722.4	85	689.9	715	331	93	262	58	103	730	53,031.20
Transmission Link from local stevens creek to Stevens Creek Recharge	2,561.20	599.6	3,449.70	3,650.00	2,484.30	1,437.40	1,362.20	2,691.50	3,631.60	3,650.00	273,204.40
Transmission Link from local thompson creek to Thompson Creek Recharge	750.7	47	1,029.90	617	362	52	178	32	109	927	54,095.90
Transmission Link from local wildcat creek to Wildcat Creek Recharge	443.5	122.5	495.5	194.4	176.5	110.7	152.1	202.7	252.5	484.1	30,494.50
Sum	82,552.40	15,198.00	97,683.70	57,913.60	30,789.40	27,942.40	23,462.30	50,498.10	68,275.50	77,226.50	6,294,950.50
demand_reduction_fctr	0	0	0	0	0	0	0	-0.05	-0.15	0	

Strategy C09

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Groundwater Storage (Acre-foot)	Groundwater	Groundwater	Groundwater S	Groundwater S	Groundwater S	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater Storage (Acre-foot	
Coyote Subbasin	19795.5	13120.3	22522.0	23024.1	15892.4	5158.7	0.0	473.9	1410.2	22735.7	
LlagasSubbasin	80063.0	123473.2	144617.8	139199.1	125894.2	111748.2	97876.0	95087.2	99080.7	143784.0	
North County Santa Clara Sbb	278073.4	259789.9	333980.9	295638.9	249293.7	216382.9	129389.4	111023.6	122126.1	327263.7	
Sum	377931.9	396383.4	501120.6	457862.1	391080.3	333289.9	227265.4	206584.7	222617.0	493783.5	
Reservoir Storage Volume (Acre-foot)	Reservoir Stor	Reservoir Stor	Reservoir Stora	Reservoir Stora	Reservoir Stora	Reservoir Stor	Reservoir Stor	Reservoir Stor	Reservoir Stor	Reservoir Storage Volume (Acre-	
Almaden Reservoir	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	351.0	
Anderson Reservoir	22000.0	22000.0	69864.0	38019.3	21939.3	21954.3	21550.4	22000.0	22000.0	51423.3	
Calero Reservoir	1000.0	693.5	5600.0	1000.0	932.6	1000.0	1000.0	993.9	2233.3	4457.5	
Chesbro Reservoir	500.0	500.0	4586.0	500.0	451.2	451.7	500.0	500.0	1293.4	4586.0	
Coyote Reservoir	1000.0	1000.0	5200.0	5200.0	997.2	993.7	910.4	1000.0	1000.0	5200.0	
Guadalupe Reservoir	200.0	168.9	1188.0	200.0	200.0	200.0	200.0	200.0	200.0	1188.0	
Lexington Reservoir	1475.3	676.5	16000.0	4895.1	1445.7	588.7	229.4	1829.1	3997.5	9395.4	
Pacheco Reservoir	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	5000.0	
Stevens Creek Reservoir	31.0	181.5	2368.0	583.6	31.0	31.0	31.0	31.0	1609.5	2368.0	
Uvas Reservoir	2703.9	2824.1	5957.6	1368.7	1104.1	557.6	500.0	3650.5	6249.7	6258.0	
cvp caryover	0.0	0.0	0.0	17569.3	0.0	0.0	0.0	0.0	0.0	28971.7	
cvp overflow not used	0.0	111259.6	329325.7	329325.7	329325.7	329325.7	329325.7	329325.7	329325.7	398660.7	
semitropic reservoir	242493.3	343345.5	350000.0	350000.0	329676.0	312653.2	276916.7	243357.1	215542.1	349652.8	
swp caryyover	0.0	0.0	0.0	11712.9	0.0	0.0	0.0	0.0	0.0	18570.2	
swp overflow not used	0.0	32251.9	176704.3	176704.3	176704.3	176704.3	176704.3	176704.3	176704.3	180646.2	
Sum	276603.5	520101.4	971993.6	942278.9	868007.2	849660.2	813068.0	784791.7	765355.5	1066728.8	
Groundwater Natural Recharge (Acre-foot)	Groundwater	Groundwater	Groundwater N	Groundwater N	Groundwater N	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater N	Groundwater Nat
Coyote Subbasin	2535.0	1326.9	5335.0	1838.8	1544.9	1101.9	1457.8	2541.2	3273.6	2141.8	183393.1
LlagasSubbasin	24664.6	19659.9	33521.4	20971.2	20239.6	19330.3	21198.0	22272.2	21962.7	22365.9	1888278.1
North County Santa Clara Sbb	39177.8	26853.8	56312.9	30423.5	26962.8	27176.6	25998.0	24763.5	29247.2	34205.1	2881697.9
Sum	66377.4	47840.6	95169.3	53233.5	48747.3	47608.8	48653.8	49576.9	54483.5	58712.8	4953369.1
Transmission Link Flow (Acre-foot)	Transmission	Transmission	Transmission Li	Transmission Li	Transmission Li	Transmission	Transmission	Transmission	Transmission	Transmission Li	Transmission Link
Transmission Link from lake elsman to sjw west to SJ Water Company	12613.8	1362.0	14943.8	3997.9	3455.9	6503.9	3720.9	6431.9	3455.9	7405.9	815457.0
Transmission Link from stanford water to Stanford Moffett Field Ames	823.0	64.0	692.0	187.0	160.0	303.0	174.0	296.0	160.0	681.0	51733.2
Sum	13436.8	1426.0	15635.8	4184.9	3615.9	6806.9	3894.9	6727.9	3615.9	8086.9	867190.3
Transmission Link Flow (Acre-foot)	Transmission	Transmission	Transmission Li	Transmission Li	Transmission Li	Transmission	Transmission	Transmission	Transmission	Transmission Li	Transmission Link
Transmission Link from SCRWA to Morgan Hill to Morgan Hill Service Are	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from deliver recycled to gilroy to Gilroy Service Ar	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	131196.6
Transmission Link from hecker pass recycled to Gilroy Service Area	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from morgan hill recycled to Morgan Hill Service Are	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from recycle pa to palo alto to Palo Alto Service Ar	1055.8	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	69136.2
Transmission Link from recycle sv to sunnyvale to Sunnyvale Service Ar	1900.0	2400.0	2400.0	2400.0	2400.0	2400.0	2400.0	2400.0	2400.0	2400.0	196297.1
Transmission Link from recycled 1 to Llagas Ag	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	98400.0
Transmission Link from recycled SB to SJWC to SJ Water Company	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	3041.7	249415.8
Transmission Link from recycled SB to santa clara to Santa Clara Servi	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	4680.0	383760.0
Transmission Link from recycled pa to mountain view to Mountain View S	994.2	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	1209.5	98961.3

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Transmission Link from recycled sb to milpitas to Milpitas Service Are	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	2106.0	172692.0
Transmission Link from recycled sb to sj muni north to SJ Muni North	9500.4	9839.7	9839.7	9839.7	9839.7	9839.7	9839.7	9839.7	9839.7	9839.7	806516.1
Transmission Link from recycled sb to sjMuni edenvale to SJ Muni servi	4071.6	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	3732.3	306387.9
Sum	30149.6	30649.5	30649.5	30649.5	30649.5	30649.5	30649.5	30649.5	30649.5	30649.5	2512763.1
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission Li	Transmission Li	Transmission Li	Transmission L	Transmission L	Transmission L	Transmission L	Transmission Li	Transmission Link
Transmission Link from hh to PHills to Purisma Hills Service Area	1828.0	1828.0	1828.0	1828.0	1828.0	1516.0	1516.0	1516.0	1516.0	1828.0	147200.7
Transmission Link from hh to Sunnyvale to Sunnyvale Service Area	13249.0	13249.0	13249.0	13249.0	13249.0	10988.0	10988.0	10988.0	10988.0	13249.0	1066882.9
Transmission Link from hh to milpitas service area to Milpitas Service	8451.0	8451.0	8451.0	8451.0	8451.0	7008.8	7008.8	7008.8	7008.8	8451.0	680521.4
Transmission Link from hh to moffett ames to Stanford Moffett Field Am	3395.0	3395.0	3395.0	3395.0	3395.0	2815.6	2815.6	2815.6	2815.6	3395.0	273384.2
Transmission Link from hh to mountain view to Mountain View Service Ar	14487.4	14407.8	14407.8	14407.8	14407.8	12120.0	12120.0	12101.1	11982.8	14407.8	1160103.4
Transmission Link from hh to palo alto to Palo Alto Service Area	14295.5	14397.2	14397.2	14397.2	14397.2	12121.7	12121.7	12108.8	12004.1	14397.2	1159180.1
Transmission Link from hh to santa clara to Santa Clara Service Area	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from hh to sj muni n to SJ Muni North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sum	55705.9	55728.0	55728.0	55728.0	55728.0	46570.3	46570.3	46538.4	46315.5	55728.0	4487272.7
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission Li	Transmission Li	Transmission Li	Transmission L	Transmission L	Transmission L	Transmission L	Transmission Li	Transmission Link
Transmission Link from local stevens creek flood release to Tributary	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from local uvas flood release to Tributary Inflow 5	0.0	0.0	35212.7	0.0	0.0	0.0	0.0	1311.8	4696.4	13106.9	989084.3
Transmission Link from release from anderson to cvp pl to Anderson PL	420.5	4542.7	59949.9	2174.2	4266.9	344.8	442.7	4730.9	4585.0	971.2	668198.7
Transmission Link from release from calero to cvp pl to Calero PL rele	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transmission Link from release from pacheco to Tributary Inflow 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sum	420.5	4542.7	95162.6	2174.2	4266.9	344.8	442.7	6042.7	9281.4	14078.1	1657283.0
Streamflow (below node or reach listed) (All Rivers) (Acre-foot)	Streamflow (b	Streamflow (b	Streamflow (be	Streamflow (be	Streamflow (be	Streamflow (b	Streamflow (b	Streamflow (b	Streamflow (b	Streamflow (be	Streamflow (belo
SWP 1 Supply 0 \ Headflow	61999.1	10999.8	96998.6	29999.6	29999.6	56999.2	21999.7	27999.6	23999.6	63999.1	4939927.4
cvp 0 source supply 0 \ Headflow	121128.4	69175.9	152497.8	94555.5	64999.0	100323.6	64999.0	75023.6	81706.6	108114.6	8991576.1
Demand Site Inflows and Outflows (Demand Site: NC Coyote Pond Recharge) (Ac	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site Inflo
Inflow from IPR Coyote	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Inflow from Lower Coyote Creek	10233.1	1801.9	10449.3	10950.0	7071.5	303.6	782.0	4567.9	5482.2	10950.0	813230.9
Inflow from cvp 3 santa clara conduit	390.4	2760.0	0.0	0.0	0.0	459.0	0.0	0.0	864.9	0.0	12256.2
Outflow to North County Santa Clara Sbb	-10623.5	-4561.9	-10449.3	-10950.0	-7071.5	-762.6	-782.0	-4567.9	-6347.0	-10950.0	-825487.1
Sum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Demand Site Inflows and Outflows (Demand Site: Ford Pond Recharge) (Acre-foo	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site Inflo
Inflow from IPR Coyote	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Inflow from Lower Coyote Creek	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Outflow to North County Santa Clara Sbb	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Demand Site Inflows and Outflows (Demand Site: Los Gatos Ponds) (Acre-foot)	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site Inflo
Inflow from IPR LG Ponds	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Inflow from Los Gatos Creek	4757.3	3723.7	0.0	9877.8	4740.4	4341.4	3231.0	5346.1	9581.1	11023.0	878630.6
Inflow from SWP 3 central pipeline	0.0	551.8	0.0	0.0	2448.0	0.0	3715.4	1082.9	0.0	4758.5	83925.1
Inflow from cvp 7 central pl	16843.6	7495.5	0.0	1010.6	4320.1	7557.6	1915.4	5470.0	2317.9	6013.6	285079.4

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Outflow to North County Santa Clara Sbb	-21600.9	-11771.0	0.0	-10888.4	-11508.5	-11899.0	-8861.8	-11899.0	-11899.0	-21795.2	-1247635.1
Sum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Demand Site Inflows and Outflows (Demand Site: Almaden and Guadalupe Ponds	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site Inflo
Inflow from Guadalupe Creek	6,371.30	385.6	0.00	3,178.80	1,644.20	3,113.80	2,701.40	5,176.90	6,079.70	6,259.10	380,588.80
Inflow from IPR Guadalupe	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inflow from SWP 4 almaden valley pipeline	126.80	432.7	0.00	894.70	0.00	727.00	0.00	139.30	0.00	667.30	17,002.40
Inflow from cvp 5 almaden valley pl	262.10	5,751.90	0.00	2,605.60	2,634.20	117.30	0.00	0.00	200.00	680.40	54,163.60
Outflow to North County Santa Clara Sbb	-6,760.20	-6,570.10	0.00	-6,679.10	-4,278.40	-3,958.20	-2,701.40	-5,316.20	-6,279.70	-7,606.90	-451,754.70
Sum	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demand Site Inflows and Outflows (Demand Site: Kooser) (Acre-foot)	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site Inflo
Inflow from IPR Guadalupe	0.00	0	0.00	0.00	0	0	0	0	0	0.00	0.00
Inflow from SWP 4 almaden valley pipeline	47.00	94.4	0.00	387.20	0	348.8	134.4	39.2	0	584.00	18,475.30
Inflow from cvp 5 almaden valley pl	245.8	1270.4	0	828.8	868.8	112.4	0	292.8	832.8	584.00	54,770.60
Outflow to North County Santa Clara Sbb	-292.80	-1364.8	0.00	-1,216.00	-868.8	-461.2	-134.4	-332	-832.8	-1,168.00	-73,245.90
Sum	0.00	0	0.00	0.00	0	0	0	0	0	0.00	0.00
Demand Site Inflows and Outflows (Demand Site: Los Capitancillos Ponds) (Acre-	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site Inflo
Inflow from Guadalupe Creek	2,141.90	23	2,713.00	1,149.70	597.9	1,132.30	982.30	1,365.50	1,681.70	1,982.40	168,853.60
Inflow from IPR Guadalupe	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inflow from SWP 4 almaden valley pipeline	46.10	157.3	0.00	412.50	0	264.40	0	50.70	0.00	339.30	12,557.10
Inflow from cvp 5 almaden valley pl	95.30	2117.3	0.00	1,112.80	957.90	42.70	0.00	0.00	105.80	408.00	31,894.60
Outflow to North County Santa Clara Sbb	-2,283.30	-2297.7	-2,713.00	-2,675.00	-1,555.80	-1,439.40	-982.30	-1,416.10	-1,787.50	-2,729.60	-213,305.20
Sum	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demand Site Inflows and Outflows (Demand Site: Overfelt Ponds) (Acre-foot)	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site Inflo
Inflow from IPR Penitencia	0	0	0.00	0	0	0	0	0	0	0	0.00
Inflow from Penitencia Creek	0	0	0.00	0.00	0	0	0	0	0	0	0.00
Inflow from SWP 2 SBA pipeline	450.7	1340	1,460.00	1,460.00	1031.8	1422	218.9	1062.2	1372.3	1,460.00	111,085.90
Outflow to North County Santa Clara Sbb	-450.7	-1340	-1,460.00	-1,460.00	-1031.8	-1422	-218.9	-1062.2	-1372.3	-1,460.00	-111,085.90
Sum	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Penitencia Ponds) (Acre-foot)	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In	Demand Site I	Demand Site I	Demand Site I	Demand Site I	Demand Site In	Demand Site Inflo
Inflow from IPR Penitencia	0	0	0.00	0	0	0	0	0	0	0	0.00
Inflow from Penitencia Creek	0	0	0.00	0.00	0.00	0	0	0	0	0	0.00
Inflow from SWP 2 SBA pipeline	766.20	2278	2,482.00	2,482.00	1,754.10	2417.4	372.2	1805.8	2332.9	2,482.00	188,846.00
Outflow to North County Santa Clara Sbb	-766.20	-2278	-2,482.00	-2,482.00	-1,754.10	-2417.4	-372.2	-1805.8	-2332.9	-2,482.00	-188,846.00
Sum	0	0	0	0	0	0	0	0	0	0	0
Transmission Link Flow (Acre-foot)	Transmission L	Transmission L	Transmission Li	Transmission Li	Transmission Li	Transmission L	Transmission L	Transmission L	Transmission L	Transmission Li	Transmission Link
Transmission Link from Uvas release to Llagas recharge to Church Pond	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from anderson release to butterfield to Butterfield	0.00	0	0.00	0.00	0	0	0	0.00	0.00	0.00	0.00
Transmission Link from anderson release to madronne to Madrone Ponds	7,888.80	811.2	1,677.50	3,368.80	1,691.30	0	0	1,000.00	1,250.00	3,368.80	228,251.40
Transmission Link from lex pl 1 to Rinconanda WTP	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 10 to NC IWRP recharge	0	0	0	0	0	0	0	0	0	0	0

Strategy C09

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	Sum
Transmission Link from lex pl 2 to San Tomas Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 3 to Wildcat Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 4 to Saratoga Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 5 to Rodeo Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 6 to Calabazas Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 7 to Regnart Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 8 to Mcclellan Pond recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 9 to Stevens Creek Recharge	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local 2 coyote pond recharge to Coyote Pond Rec	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transmission Link from local 2 guad creek to Guadalupe creek	5,618.30	340	7,081.00	3,404.50	1,449.90	2,745.80	2,382.20	4,565.10	5,361.20	5,519.40	475,094.40
Transmission Link from local 2 lower coyote recharge to lower coyote r	1,460.00	511.6	1,393.20	1,460.00	1,092.00	429.5	574.7	856	1,092.00	1,460.00	115,421.50
Transmission Link from local 2 overfelt to Overfelt Ponds	0	0	0.00	0	0	0	0	0	0	0	0.00
Transmission Link from local 2 pen ponds to Penitencia Ponds	0	0	0.00	0	0	0	0	0	0	0	0.00
Transmission Link from local 2 upper coyote to NC Upper Coyote Recharg	171.7	54.7	0	159.3	134.9	45.9	64.3	111.3	134.9	171.7	10,218.80
Transmission Link from local Chesbro release to recharge to Church Pon	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transmission Link from local Uvas release to recharge to Uvas Recharge	10,117.80	1,787.30	3,381.80	6,791.40	4,556.80	9,556.80	6,995.30	8,713.50	10,117.80	6,791.40	576,760.30
Transmission Link from local alamitos creek to Alamitos Creek recharge	1,106.50	101.70	2,068.50	916.30	447.00	849.20	736.8	1,042.90	1,405.70	1,305.10	131,480.80
Transmission Link from local anderson 2 coyote ponds to NC Coyote Pond	10,233.10	1,801.90	10,449.30	10,950.00	7,071.50	303.6	782	4,567.90	5,482.20	10,950.00	813,230.90
Transmission Link from local anderson release to main ave ponds to Mai	2,122.80	218.3	451.4	906.50	569.8	0	0	451.4	526	906.50	62,453.60
Transmission Link from local anderson res to Church Pond and Llagas Re	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local anderson res to Lower Llagas Recharge	0.00	0	0.00	0	0	0	0	0	0.00	0.00	0.00
Transmission Link from local calabasas creek to Calabazas Creek Rechar	1,149.00	236	1,366.30	141	353	200	50	374.4	1,015.20	1,869.00	72,266.40
Transmission Link from local calero creek to Calero Creek recharge	724.00	43	870.80	438.70	186.8	353.80	307.00	588.30	689.00	711.30	61,010.80
Transmission Link from local guadalupe 1 to Los Capitancillos Ponds	2,141.90	23	2,713.00	1,149.70	597.9	1,132.30	982.30	1,365.50	1,681.70	1,982.40	168,853.60
Transmission Link from local guadaupe 2 to Almaden and Guadalupe Ponds	6,371.30	385.6	0.00	3,178.80	1,644.20	3,113.80	2,701.40	5,176.90	6,079.70	6,259.10	380,588.80
Transmission Link from local lg creek diversion to Los Gatos Ck rechar	0.00	262.00	5,573.00	3,634.40	419.00	496.00	53.50	496.00	1,915.40	992.00	261,837.80
Transmission Link from local lg pond diversion to Los Gatos Ponds	4,757.30	3,723.70	0.00	9,877.80	4,740.40	4,341.40	3,231.00	5,346.10	9,581.10	11,023.00	878,630.60
Transmission Link from local lower Llagas recharge to Lower Llagas Rec	2,980.30	294.6	2,415.60	2,462.80	368.2	498.9	1,466.60	4,340.00	6,435.90	4,023.90	320,645.30
Transmission Link from local penitencia creek to Penitencia Creek Rech	1,335.80	164	0	475	334	484	227	410	747	1,198.00	55,703.10
Transmission Link from local regnart creek to Regnart Creek Recharge	276.7	14	343.6	15	20	4	1	73.3	189.4	451.7	16,973.20
Transmission Link from local release 2 ford ponds to Ford Pond Recharg	0.00	0.00	0.00	0.00	0.00	0	0	0.00	0.00	0.00	0.00
Transmission Link from local release 2 upper coyote to Coyote Upper Re	15,284.40	2,369.20	11,456.30	15,768.70	7,903.20	514.3	0	6,598.90	8,653.10	15,511.30	1,110,759.80
Transmission Link from local rodeo creek to Rodeo Creek Recharge	67.6	2	126.00	2	3	0	0	16	50	178.7	5,041.90
Transmission Link from local ross creek recharge to Ross Creek Recharg	863.8	290	1,137.40	487	421	364	364	517	633	888	57,830.50
Transmission Link from local san tomoa creek to San Tomas Creek Rechar	691.4	188.5	772.3	299.1	271.5	170.3	233.9	311.8	388.5	771.9	48,742.90
Transmission Link from local saratoga div to NC IWRP recharge	0.00	0	0.00	0.00	0	0.00	0	0	0.00	0.00	0.00
Transmission Link from local saratogo creek to Saratoga Creek Recharge	2,683.40	648	3,367.40	1,133.00	593	1,203.20	981	958.2	1,846.00	3,512.20	184,773.70
Transmission Link from local silver creek to Silver Creek Recharge	722.40	85	696.60	715.00	331.00	93.00	262.00	58.00	103.00	730.00	53,024.10
Transmission Link from local stevens creek to Stevens Creek Recharge	2,561.20	599.6	3,483.10	3,650.00	2,484.30	1,437.40	1,362.20	2,691.50	3,631.60	3,650.00	273,169.00
Transmission Link from local thompson creek to Thompson Creek Recharge	750.7	47	1,039.90	617	362	52	178	32	109	927	54,085.20
Transmission Link from local wildcat creek to Wildcat Creek Recharge	443.50	122.50	502.00	194.40	176.50	110.70	152.10	202.70	252.50	484.10	30,487.60
Sum	82,523.60	15,124.40	62,366.10	72,196.30	38,222.20	28,500.10	24,088.00	50,864.60	69,370.80	85,636.30	6,447,336.00
demand_reduction_fctr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.10	-0.15	0.00	

WEAP Output No Baseline Investments

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	2003	Sum
Groundwater Storage (Acre-foot)	Groundwate	Groundwater S	Groundwater	Groundwater St	Groundwater St	Groundwater	Groundwater	Groundwater S	Groundwater	Groundwater St	Groundwater Storage (Acre-foo	
Coyote Subbasin	19,795.50	0	22,153.00	15,326.00	978.8	0	0	0	1,000.90	18,489.00	20,375.50	
LlagasSubbasin	72,872.80	108,634.10	144,115.50	128,066.90	114,862.70	113,595.50	115,020.70	118,214.60	129,125.20	138,658.50	136,970.60	
North County Santa Clara Sbb	282,325.00	2,627.60	217,033.20	99,162.40	1,213.00	30,744.30	67,934.30	4,935.90	36,194.30	136,991.40	148,537.90	
Sum	374,993.30	111,261.70	383,301.70	242,555.30	117,054.40	144,339.80	182,955.00	123,150.50	166,320.40	294,138.90	305,883.90	
Reservoir Storage Volume (Acre-foot)	Reservoir St	Reservoir Stor	Reservoir Stor	Reservoir Stora	Reservoir Stora	Reservoir Stor	Reservoir Sto	Reservoir Stora	Reservoir Stor	Reservoir Stora	Reservoir Storage Volume (Acr	
Almaden Reservoir	200	200	200	200	200	200	200	200	200	351	200	
Anderson Reservoir	22,000.00	20,633.10	51,200.00	22,000.00	21,615.60	21,954.30	21,550.40	22,000.00	22,000.00	30,165.50	22,000.00	
Calero Reservoir	1,000.00	687.9	3,991.20	1,000.00	932.6	1,000.00	1,000.00	993.9	2,233.30	4,457.50	1,619.00	
Chesbro Reservoir	500	500	4,586.00	500	436.5	451.7	500	500	1,293.40	4,586.00	2,254.50	
Coyote Reservoir	1,000.00	937.9	5,200.00	1,000.00	982.5	993.7	910.4	1,000.00	1,000.00	5,200.00	1,264.00	
Guadalupe Reservoir	200	168.9	1,188.00	200	200	200	200	200	200	1,188.00	200	
Lexington Reservoir	2,621.40	3,427.30	13,482.70	6,411.70	4,383.90	3,461.80	2,789.90	5,200.50	7,801.60	12,324.00	6,765.80	
Pacheco Reservoir	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	
Stevens Creek Reservoir	31	181.5	2,368.00	583.6	31	31	31	31	1,609.50	2,368.00	2,368.00	
Uvas Reservoir	2,524.90	2,824.10	5,987.70	500	1,104.10	557.6	500	3,963.60	6,258.00	6,258.00	6,258.00	
cvp caryover	0	0	0	0	0	0	0	0	0	0	0	
cvp overflow not used	0	0	104,459.00	104,459.00	104,459.00	104,459.00	104,459.00	104,459.00	104,459.00	120,150.50	120,150.50	
semitropic reservoir	242,532.10	0	41,683.90	2,680.10	0	0	0	0	0	55,115.60	32,813.60	
swp caryyover	0	0	0	0	0	0	0	0	0	0	0	
swp overflow not used	0	0	34,646.30	34,646.30	34,646.30	34,646.30	34,646.30	34,646.30	34,646.30	34,646.30	34,646.30	
Sum	277,609.40	34,560.70	273,992.60	179,180.60	173,991.60	172,955.30	171,787.00	178,194.20	186,701.00	281,810.40	235,539.60	
Groundwater Natural Recharge (Acre-foot)	Groundwate	Groundwater N	Groundwater	Groundwater Na	Groundwater N	Groundwater	Groundwater	Groundwater N	Groundwater N	Groundwater N	Groundwater N	Groundwater N
Coyote Subbasin	2,535.00	1,326.90	5,335.00	1,838.80	1,544.90	1,101.90	1,457.80	2,541.20	3,273.60	2,141.80	1,990.30	183,393.10
LlagasSubbasin	18,129.30	21,464.50	32,000.40	21,397.30	20,951.50	19,716.10	21,162.80	21,993.90	19,018.50	23,642.90	22,257.30	1,802,330.50
North County Santa Clara Sbb	38,509.30	51,285.70	51,781.40	36,433.90	41,905.40	42,780.40	56,319.30	26,833.40	15,441.40	32,270.70	25,956.40	3,028,956.00
Sum	59,173.60	74,077.10	89,116.80	59,670.00	64,401.80	63,598.40	78,939.90	51,368.50	37,733.50	58,055.40	50,204.00	5,014,679.70
Transmission Link Flow (Acre-foot)	Transmissio	Transmission L	Transmission	Transmission Li	Transmission L	Transmission	Transmission	Transmission L	Transmission L	Transmission L	Transmission L	Transmission L
Transmission Link from lake elsman to sjw west to SJ Water Company	12,613.80	1,362.00	14,943.80	3,997.90	3,455.90	6,503.90	3,720.90	6,431.90	3,455.90	7,405.90	15,947.80	815,457.00
Transmission Link from stanford water to Stanford Moffett Field Ames	823	64	692	187	160	303	174	296	160	681	976	51,733.20
Sum	13,436.80	1,426.00	15,635.80	4,184.90	3,615.90	6,806.90	3,894.90	6,727.90	3,615.90	8,086.90	16,923.80	867,190.30
Transmission Link Flow (Acre-foot)	Transmissio	Transmission L	Transmission	Transmission Li	Transmission L	Transmission	Transmission	Transmission L	Transmission L	Transmission L	Transmission L	Transmission L
Transmission Link from deliver recycled to gilroy to Gilroy Service Ar	1,600.00	216	216	216	216	216	216	216	216	216	216	19,095.00
Transmission Link from recycle pa to palo alto to Palo Alto Service Ar	1,055.80	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	69,136.20
Transmission Link from recycle sv to sunnyvale to Sunnyvale Service Ar	1,900.00	1,800.00	1,800.00	1,800.00	1,800.00	1,800.00	1,800.00	1,800.00	1,800.00	1,800.00	1,800.00	147,697.80
Transmission Link from recycled 1 to Llagas Ag	1,200.00	1,034.00	1,034.00	1,034.00	1,034.00	1,034.00	1,034.00	1,034.00	1,034.00	1,034.00	1,034.00	84,953.50
Transmission Link from recycled SB to SJWC to SJ Water Company	3,060.90	0	0	0	0	0	0	0	0	0	0	3,060.90
Transmission Link from recycled SB to santa clara to Santa Clara Servi	4,680.00	3,285.70	3,248.50	3,248.50	3,285.70	3,257.00	3,344.80	3,164.20	3,344.80	3,248.50	3,266.00	269,177.00
Transmission Link from recycled pa to mountain view to Mountain View S	994.2	909.5	909.5	909.5	909.5	909.5	909.5	909.5	909.5	909.5	909.5	74,661.60
Transmission Link from recycled sb to milpitas to Milpitas Service Are	2,106.00	2,106.00	2,106.00	2,106.00	2,106.00	2,106.00	2,106.00	2,106.00	2,106.00	2,106.00	2,106.00	172,692.00
Transmission Link from recycled sb to sj muni north to SJ Muni North	9,481.10	1,074.80	1,112.10	1,112.10	1,074.80	1,103.60	1,015.80	1,196.40	1,015.80	1,112.10	1,094.50	98,188.70
Transmission Link from recycled sb to sjMuni edenvale to SJ Muni servi	4,071.60	3,732.30	3,732.30	3,732.30	3,732.30	3,732.30	3,732.30	3,732.30	3,732.30	3,732.30	3,732.30	306,387.90

WEAP Output No Baseline Investments

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	2003	Sum
Sum	30,149.60	14,998.80	14,998.80	14,998.80	14,998.80	14,998.80	14,998.80	14,998.80	14,998.80	14,998.80	14,998.80	1,245,050.70
Transmission Link Flow (Acre-foot)	Transmissio	Transmission L	Transmission	Transmission Li	Transmission L	Transmission	Transmission	Transmission L	Transmission I	Transmission L	Transmission L	Transmission L
Transmission Link from hh to PHills to Purisma Hills Service Area	1,842.00	1,842.00	1,842.00	1,842.00	1,842.00	1,481.00	1,481.00	1,281.00	1,481.00	1,842.00	1,842.00	147,756.00
Transmission Link from hh to Sunnyvale to Sunnyvale Service Area	10,158.00	10,158.00	10,158.00	10,158.00	10,158.00	10,945.00	10,945.00	9,458.00	10,945.00	10,158.00	10,158.00	836,278.00
Transmission Link from hh to milpitas service area to Milpitas Service	10,010.00	10,010.00	10,010.00	10,010.00	10,010.00	7,754.00	7,225.20	6,702.00	7,225.20	10,010.00	10,010.00	799,610.50
Transmission Link from hh to moffett ames to Stanford Moffett Field Am	3,445.00	3,445.00	3,445.00	3,445.00	3,445.00	2,539.00	2,539.00	2,193.00	2,539.00	3,445.00	3,445.00	274,550.00
Transmission Link from hh to mountain view to Mountain View Service Ar	12,840.00	12,787.10	12,840.00	12,840.00	12,787.10	9,461.50	7,465.50	9,155.00	7,465.50	12,840.00	12,840.00	1,015,325.90
Transmission Link from hh to palo alto to Palo Alto Service Area	14,631.50	13,688.80	14,739.90	14,739.90	13,688.80	9,352.60	7,314.00	10,562.70	7,314.00	14,739.90	14,315.20	1,126,584.40
Transmission Link from hh to santa clara to Santa Clara Service Area	5,119.00	5,119.00	5,119.00	5,119.00	5,119.00	1,942.00	1,942.00	1,679.00	1,942.00	5,119.00	5,119.00	393,816.00
Transmission Link from hh to sj muni n to SJ Muni North	5,119.00	5,119.00	5,119.00	5,119.00	5,119.00	3,283.00	3,283.00	2,838.00	3,283.00	5,119.00	5,119.00	404,180.00
Sum	63,164.50	62,168.90	63,272.90	63,272.90	62,168.90	46,758.20	42,194.80	43,868.70	42,194.80	63,272.90	62,848.20	4,998,100.80
Transmission Link Flow (Acre-foot)	Transmissio	Transmission L	Transmission	Transmission Li	Transmission L	Transmission	Transmission	Transmission L	Transmission I	Transmission L	Transmission L	Transmission L
Transmission Link from local stevens creek flood release to Tributary	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local uvas flood release to Tributary Inflow 5	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from release from anderson to cvp pl to Anderson PL	420.5	0	43,218.40	3,257.40	167.8	4.1	159.1	4,253.40	6,380.90	971.2	967	601,688.50
Transmission Link from release from calero to cvp pl to Calero PL rele	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from release from pacheco to Tributary Inflow 6	0	0	0	0	0	0	0	0	0	0	0	0
Sum	420.5	0	43,218.40	3,257.40	167.8	4.1	159.1	4,253.40	6,380.90	971.2	967	601,688.50
Streamflow (below node or reach listed) (All Rivers) (Acre-foot)	Streamflow (	Streamflow (be	Streamflow (b	Streamflow (bel	Streamflow (bel	Streamflow (b	Streamflow (b	Streamflow (be	Streamflow (be	Streamflow (be	Streamflow (bel	Streamflow (bel
SWP 1 Supply 0 \ Headflow	61,999.10	10,999.80	96,998.60	29,999.60	29,999.60	56,999.20	21,999.70	27,999.60	23,999.60	63,999.10	60,999.10	4,939,927.40
cvp 0 source supply 0 \ Headflow	121,128.40	69,175.90	152,497.80	94,555.50	64,999.00	100,323.60	64,999.00	75,023.60	81,706.60	108,114.60	111,198.50	8,991,576.10
Demand Site Inflows and Outflows (Demand Site: NC Coyote Pond Rechar	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site Ir	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR Coyote	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from Lower Coyote Creek	10,233.10	6.6	10,950.00	8,416.90	2,091.60	76.9	782	4,016.30	4,038.30	8,748.50	9,700.60	729,518.10
Inflow from cvp 3 santa clara conduit	291.7	0	0	0	0	0	0	0	0	0	750.4	6,005.10
Outflow to North County Santa Clara Sbb	-10,524.80	-6.6	-10,950.00	-8,416.90	-2,091.60	-76.9	-782	-4,016.30	-4,038.30	-8,748.50	-10,451.00	-735,523.20
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Ford Pond Recharge) (A	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site Ir	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR Coyote	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from Lower Coyote Creek	0	0	0	0	0	0	0	0	0	0	0	0
Outflow to North County Santa Clara Sbb	0	0	0	0	0	0	0	0	0	0	0	0
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Los Gatos Ponds) (Acre-	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site Ir	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR LG Ponds	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from Los Gatos Creek	1,797.10	3,076.70	23,798.00	7,742.50	3,399.80	3,994.50	3,269.20	4,252.40	8,389.40	9,553.70	13,813.40	1,094,793.60
Inflow from SWP 3 central pipeline	0	0	0	0	0	0	0	0	0	0	0	2,467.30
Inflow from cvp 7 central pl	18,592.70	0	0	3,529.00	0	510.9	0	0	0	10,410.70	9,984.60	455,931.60
Outflow to North County Santa Clara Sbb	-20,389.80	-3,076.70	-23,798.00	-11,271.60	-3,399.80	-4,505.40	-3,269.20	-4,252.40	-8,389.40	-19,964.40	-23,798.00	-1,553,192.50
Sum	0	0	0	0	0	0	0	0	0	0	0	0

WEAP Output No Baseline Investments

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	2003	Sum
Demand Site Inflows and Outflows (Demand Site: Almaden and Guadalupe	Demand Site	Demand Site I	Demand Site (	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site Ir	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from Guadalupe Creek	6,362.70	385.6	8,030.00	2,855.00	1,644.20	3,113.80	2,701.40	5,176.90	6,079.70	6,259.10	7,763.50	520,889.40
Inflow from IPR Guadalupe	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 4 almaden valley pipeline	193.1	0	0	0	0	0	0	0	0	476.2	266.5	1,271.50
Inflow from cvp 5 almaden valley pl	195.8	0	0	320.8	0	0	0	0	0	0	0	30,379.50
Outflow to North County Santa Clara Sbb	-6,751.60	-385.6	-8,030.00	-3,175.70	-1,644.20	-3,113.80	-2,701.40	-5,176.90	-6,079.70	-6,735.30	-8,030.00	-552,540.50
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Kooser) (Acre-foot)	Demand Site	Demand Site I	Demand Site (	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site Ir	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR Guadalupe	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 4 almaden valley pipeline	71.5	0	0	0	0	0	0	0	0	141.5	144	775.4
Inflow from cvp 5 almaden valley pl	221.3	0	1,752.00	576	0	0	0	0	0	283.2	1,123.30	81,507.20
Outflow to North County Santa Clara Sbb	-292.8	0	-1,752.00	-576	0	0	0	0	0	-424.7	-1,267.30	-82,282.70
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Los Capitancillos Ponds)	Demand Site	Demand Site I	Demand Site (	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site Ir	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from Guadalupe Creek	2,141.90	23	2,448.10	905.4	597.9	1,132.30	982.3	1,365.50	1,681.70	1,982.40	2,359.00	162,007.50
Inflow from IPR Guadalupe	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 4 almaden valley pipeline	70.2	0	0	0	0	0	0	0	0	202.5	165.1	588.2
Inflow from cvp 5 almaden valley pl	71.2	0	471.9	249.4	0	0	0	0	0	0	395.9	29,365.90
Outflow to North County Santa Clara Sbb	-2,283.30	-23	-2,920.00	-1,154.80	-597.9	-1,132.30	-982.3	-1,365.50	-1,681.70	-2,184.80	-2,920.00	-191,961.60
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Overfelt Ponds) (Acre-foo	Demand Site	Demand Site I	Demand Site (	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site Ir	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR Penitencia	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from Penitencia Creek	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 2 SBA pipeline	362	0	1,460.00	849.2	0	0	0	0	0	617.1	1,266.40	76,025.70
Outflow to North County Santa Clara Sbb	-362	0	-1,460.00	-849.2	0	0	0	0	0	-617.1	-1,266.40	-76,025.70
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Penitencia Ponds) (Acre-	Demand Site	Demand Site I	Demand Site (	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site Ir	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR Penitencia	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from Penitencia Creek	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 2 SBA pipeline	615.4	0	2,482.00	1,443.70	0	0	0	0	0	1,049.00	2,152.80	129,243.60
Outflow to North County Santa Clara Sbb	-615.4	0	-2,482.00	-1,443.70	0	0	0	0	0	-1,049.00	-2,152.80	-129,243.60
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link Flow (Acre-foot)	Transmissio	Transmission I	Transmission	Transmission Li	Transmission L	Transmission	Transmission	Transmission L	Transmission I	Transmission L	Transmission L	Transmission L
Transmission Link from Uvas release to Llagas recharge to Church Pond	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from anderson release to butterfield to Butterfield	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from anderson release to madronne to Madrone Ponds	7,246.00	0	2,192.90	2,570.50	232.6	501.4	207.3	2,337.50	2,959.90	3,323.20	2,800.00	273,544.80
Transmission Link from lex pl 1 to Rinconanda WTP	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 10 to NC IWRP recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 2 to San Tomas Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 3 to Wildcat Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0

WEAP Output No Baseline Investments

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	2003	Sum
Transmission Link from lex pl 4 to Saratoga Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 5 to Rodeo Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 6 to Calabazas Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 7 to Regnart Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 8 to Mcclellan Pond recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 9 to Stevens Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local 2 coyote pond recharge to Coyote Pond Re	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local 2 guad creek to Guadalupe creek	5,610.80	340	7,081.00	2,517.60	1,449.90	2,745.80	2,382.20	4,565.10	5,361.20	5,519.40	6,846.00	459,329.80
Transmission Link from local 2 lower coyote recharge to lower coyote r	1,460.00	338.9	1,460.00	1,460.00	717.2	429.5	574.7	835.7	1,014.50	1,460.00	1,460.00	114,139.20
Transmission Link from local 2 overfelt to Overfelt Ponds	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local 2 pen ponds to Penitencia Ponds	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local 2 upper coyote to NC Upper Coyote Rechar	171.7	34.5	171.7	171.7	84.2	45.9	64.3	108.4	125.3	171.7	171.7	13,432.70
Transmission Link from local Chesbro release to recharge to Church Pon	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local Uvas release to recharge to Uvas Recharge	10,117.80	1,787.30	5,100.50	7,901.00	3,832.20	9,556.80	6,995.30	8,713.50	10,117.80	8,482.30	7,623.00	677,633.70
Transmission Link from local alamitos creek to Alamitos Creek recharge	1,106.50	101.7	2,019.40	749.6	447	849.2	736.8	1,042.90	1,405.70	1,305.10	1,935.70	126,386.70
Transmission Link from local anderson 2 coyote ponds to NC Coyote Pon	10,233.10	6.6	10,950.00	8,416.90	2,091.60	76.9	782	4,016.30	4,038.30	8,748.50	9,700.60	729,518.10
Transmission Link from local anderson release to main ave ponds to Mai	2,665.20	0	1,200.00	718.5	85	146.6	76.3	670.5	861.6	1,540.40	1,000.00	119,518.40
Transmission Link from local anderson res to Church Pond and Llagas Re	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local anderson res to Lower Llagas Recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local calabasas creek to Calabazas Creek Recha	1,149.00	236	1,474.40	141	353	200	50	374.4	1,015.20	1,869.00	1,869.00	72,406.70
Transmission Link from local calero creek to Calero Creek recharge	723	43	912.5	324.4	186.8	353.8	307	588.3	689	711.3	882.2	59,009.20
Transmission Link from local guadalupe 1 to Los Capitancillos Ponds	2,141.90	23	2,448.10	905.4	597.9	1,132.30	982.3	1,365.50	1,681.70	1,982.40	2,359.00	162,007.50
Transmission Link from local guadaupe 2 to Almaden and Guadalupe Por	6,362.70	385.6	8,030.00	2,855.00	1,644.20	3,113.80	2,701.40	5,176.90	6,079.70	6,259.10	7,763.50	520,889.40
Transmission Link from local lg creek diversion to Los Gatos Ck rechar	0	262.8	5,840.00	1,642.30	154.8	496	69.4	496	2,416.00	992	2,416.00	199,501.00
Transmission Link from local lg pond diversion to Los Gatos Ponds	1,797.10	3,076.70	23,798.00	7,742.50	3,399.80	3,994.50	3,269.20	4,252.40	8,389.40	9,553.70	13,813.40	1,094,793.60
Transmission Link from local lower Llagas recharge to Lower Llagas Rec	3,008.70	294.6	3,643.20	2,025.40	383	484.2	1,466.60	4,340.00	6,435.90	3,831.90	5,445.00	368,894.30
Transmission Link from local penitencia creek to Penitencia Creek Rech	1,335.80	164	1,840.00	627	334	484	227	410	747	1,198.00	1,198.00	86,555.70
Transmission Link from local regnart creek to Regnart Creek Recharge	276.7	14	366.3	15	20	4	1	73.3	189.4	451.7	451.7	16,995.90
Transmission Link from local release 2 ford ponds to Ford Pond Recharg	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local release 2 upper coyote to Coyote Upper Re	15,207.60	0	11,456.30	10,468.40	0	95.3	0	6,094.40	6,449.20	11,778.20	15,454.10	1,044,620.10
Transmission Link from local rodeo creek to Rodeo Creek Recharge	67.6	2	126	2	3	0	0	16	50	178.7	178.7	5,041.90
Transmission Link from local ross creek recharge to Ross Creek Recharg	863.8	290	1,234.00	487	421	364	364	517	633	888	888	57,927.10
Transmission Link from local san tomoa creek to San Tomas Creek Rech	691.4	188.5	822.4	299.1	271.5	170.3	233.9	311.8	388.5	771.9	771.9	48,813.60
Transmission Link from local saratoga div to NC IWRP recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local saratogo creek to Saratoga Creek Recharge	2,683.40	648	3,604.40	1,133.00	593	1,203.20	981	958.2	1,846.00	3,512.20	3,512.20	185,108.40
Transmission Link from local silver creek to Silver Creek Recharge	722.4	85	730	715	331	93	262	58	103	730	730	53,071.30
Transmission Link from local stevens creek to Stevens Creek Recharge	2,532.30	599.6	3,650.00	3,650.00	2,484.30	1,437.40	1,362.20	2,691.50	3,631.60	3,650.00	3,650.00	273,375.80
Transmission Link from local thompson creek to Thompson Creek Rechar	750.7	47	1,090.00	617	362	52	178	32	109	927	927	54,156.00
Transmission Link from local wildcat creek to Wildcat Creek Recharge	443.5	122.5	534.5	194.4	176.5	110.7	152.1	202.7	252.5	484.1	484.1	30,533.50
Sum	79,368.80	9,091.30	101,775.40	58,349.90	20,655.50	28,140.80	24,425.80	50,248.20	66,990.40	80,319.80	94,330.70	6,847,204.40
Demand Reduction Factor	0	-0.1	0	0	-0.1	-0.38	-0.5	-0.25	-0.5	0	-0.05	

WEAP Output Baseline 2015

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	2003	Sum
Groundwater Storage (Acre-foot)	Groundwate	Groundwater S	Groundwater	Groundwater St	Groundwater	Groundwater S	Groundwater	Groundwater S	Groundwater S	Groundwater S	Groundwater Storage (Acre-foo	
Coyote Subbasin	23,822.10	17,196.80	23,402.20	23,621.60	17,516.00	10,135.40	0	0	1,938.70	24,291.20	23,989.00	
LlagasSubbasin	63,589.90	109,512.90	140,243.80	126,138.40	114,458.50	109,168.60	103,238.20	101,738.60	100,622.30	133,919.40	134,783.80	
North County Santa Clara Sbb	308,747.60	305,172.40	345,105.50	314,170.40	304,665.20	284,218.60	226,381.70	170,475.70	135,832.20	328,281.00	324,037.70	
Sum	396,159.60	431,882.10	508,751.50	463,930.40	436,639.70	403,522.60	329,620.00	272,214.30	238,393.10	486,491.60	482,810.40	
Reservoir Storage Volume (Acre-foot)	Reservoir St	Reservoir Stor	Reservoir Sto	Reservoir Stora	Reservoir Sto	Reservoir Stor	Reservoir Sto	Reservoir Stora	Reservoir Stor	Reservoir Stora	Reservoir Storage Volume (Acr	
Almaden Reservoir	200	200	200	200	200	200	200	200	200	351	200	
Anderson Reservoir	26,492.70	20,793.90	46,300.00	22,000.00	21,939.30	21,954.30	21,550.40	22,000.00	22,000.00	44,523.20	38,648.50	
Calero Reservoir	1,000.00	706.6	5,600.00	1,000.00	932.6	1,000.00	1,000.00	993.9	2,233.30	4,457.50	5,263.10	
Chesbro Reservoir	500	500	4,586.00	500	436.5	451.7	500	500	1,293.40	4,586.00	2,254.50	
Coyote Reservoir	5,200.00	945.2	5,200.00	4,700.90	997.2	993.7	910.4	1,000.00	1,312.10	5,200.00	5,200.00	
Guadalupe Reservoir	200	168.9	1,188.00	200	200	200	200	200	200	1,188.00	200	
Lexington Reservoir	2,621.40	4,641.50	16,000.00	7,701.50	5,080.90	3,858.20	3,004.10	5,322.30	7,835.60	16,000.00	15,889.00	
Pacheco Reservoir	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	
Stevens Creek Reservoir	31	181.5	2,368.00	583.6	31	31	31	31	1,609.50	2,368.00	2,368.00	
Uvas Reservoir	2,524.90	2,824.10	5,987.70	500	1,104.10	557.6	500	3,963.60	6,258.00	6,258.00	6,258.00	
cvp caryover	0	0	0	66,294.10	6,560.70	0	0	0	0	69,684.60	75,000.00	
cvp overflow not used	0	595,997.80	838,310.20	838,310.20	838,310.20	838,310.20	838,310.20	838,310.20	838,310.20	912,504.00	916,458.50	
semitropic reservoir	247,088.60	336,535.00	350,000.00	350,000.00	350,000.00	345,458.00	309,721.30	272,083.50	237,916.00	349,998.10	350,000.00	
swp caryyover	0	0	0	24,525.10	4,373.80	0	0	0	0	46,456.40	50,000.00	
swp overflow not used	0	357,039.10	528,349.50	528,349.50	528,349.50	528,349.50	528,349.50	528,349.50	528,349.50	540,788.70	548,461.70	
Sum	290,858.60	1,325,533.50	1,809,089.40	1,849,864.90	1,763,515.90	1,746,364.20	1,709,277.00	1,677,954.00	1,652,517.70	2,009,363.50	2,021,201.40	
Groundwater Natural Recharge (Acre-foot)	Groundwate	Groundwater N	Groundwater	Groundwater N	Groundwater	Groundwater	Groundwater	Groundwater N	Groundwater N	Groundwater N	Groundwater N	Groundwater N
Coyote Subbasin	2,535.00	1,326.90	5,335.00	1,838.80	1,544.90	1,101.90	1,457.80	2,541.20	3,273.60	2,141.80	1,990.30	183,393.10
LlagasSubbasin	18,129.30	21,464.50	32,000.40	21,397.30	20,951.50	19,716.10	21,162.80	21,993.90	19,018.50	23,642.90	22,257.30	1,802,330.50
North County Santa Clara Sbb	38,509.30	51,285.70	51,781.40	36,433.90	41,905.40	42,780.40	56,319.30	26,833.40	15,441.40	32,270.70	25,956.40	3,028,956.00
Sum	59,173.60	74,077.10	89,116.80	59,670.00	64,401.80	63,598.40	78,939.90	51,368.50	37,733.50	58,055.40	50,204.00	5,014,679.70
Transmission Link Flow (Acre-foot)	Transmissio	Transmission	Transmission	Transmission Li	Transmission	Transmission	Transmission	Transmission L	Transmission	Transmission L	Transmission L	Transmission L
Transmission Link from lake elsman to sjw west to SJ Water Compa	12,613.80	1,362.00	14,943.80	3,997.90	3,455.90	6,503.90	3,720.90	6,431.90	3,455.90	7,405.90	15,947.80	815,457.00
Transmission Link from stanford water to Stanford Moffett Field Am	823	64	692	187	160	303	174	296	160	681	976	51,733.20
Sum	13,436.80	1,426.00	15,635.80	4,184.90	3,615.90	6,806.90	3,894.90	6,727.90	3,615.90	8,086.90	16,923.80	867,190.30
Transmission Link Flow (Acre-foot)	Transmissio	Transmission	Transmission	Transmission Li	Transmission	Transmission	Transmission	Transmission L	Transmission	Transmission L	Transmission L	Transmission L
Transmission Link from deliver recycled to gilroy to Gilroy Service A	329	329	329	329	329	329	329	329	329	329	329	26,976.80
Transmission Link from recycle pa to palo alto to Palo Alto Service	901.8	717.9	717.9	717.9	717.9	717.9	717.9	717.9	717.9	717.9	717.9	59,052.50
Transmission Link from recycle sv to sunnyvale to Sunnyvale Servic	1,801.00	1,801.00	1,801.00	1,801.00	1,801.00	1,801.00	1,801.00	1,801.00	1,801.00	1,801.00	1,801.00	147,679.80
Transmission Link from recycled 1 to Llagas Ag	1,071.00	1,071.00	1,071.00	1,071.00	1,071.00	1,071.00	1,071.00	1,071.00	1,071.00	1,071.00	1,071.00	87,821.60
Transmission Link from recycled SB to SJWC to SJ Water Company	1,995.10	1,995.10	1,995.10	1,995.10	1,995.10	1,995.10	1,995.10	1,995.10	1,995.10	1,995.10	1,995.10	163,598.60
Transmission Link from recycled SB to santa clara to Santa Clara S	3,990.60	3,990.60	3,990.60	3,990.60	3,990.60	3,990.60	3,990.60	3,990.60	3,990.60	3,990.60	3,990.60	327,229.20
Transmission Link from recycled pa to mountain view to Mountain V	849.2	1,033.10	1,033.10	1,033.10	1,033.10	1,033.10	1,033.10	1,033.10	1,033.10	1,033.10	1,033.10	84,527.40
Transmission Link from recycled sb to milpitas to Milpitas Service A	1,463.20	1,463.20	1,463.20	1,463.20	1,463.20	1,463.20	1,463.20	1,463.20	1,463.20	1,463.20	1,463.20	119,984.00
Transmission Link from recycled sb to sj muni north to SJ Muni Nort	4,097.00	4,243.30	4,243.30	4,243.30	4,243.30	4,243.30	4,243.30	4,243.30	4,243.30	4,243.30	4,243.30	347,807.40
Transmission Link from recycled sb to sjMuni edenvale to SJ Muni s	1,755.90	1,609.50	1,609.50	1,609.50	1,609.50	1,609.50	1,609.50	1,609.50	1,609.50	1,609.50	1,609.50	132,128.80

WEAP Output Baseline 2015

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	2003	Sum
Sum	18,253.70	18,253.70	18,253.70	18,253.70	18,253.70	18,253.70	18,253.70	18,253.70	18,253.70	18,253.70	18,253.70	1,496,806.00
Transmission Link Flow (Acre-foot)	Transmissio	Transmission I	Transmission	Transmission Li	Transmission	Transmission	Transmission	Transmission L	Transmission I	Transmission L	Transmission L	Transmission L
Transmission Link from hh to PHills to Purisma Hills Service Area	1,890.00	1,890.00	1,890.00	1,890.00	1,890.00	1,530.00	1,530.00	1,329.00	1,530.00	1,890.00	1,890.00	151,698.00
Transmission Link from hh to Sunnyvale to Sunnyvale Service Area	10,419.00	10,419.00	10,419.00	10,419.00	10,419.00	11,299.00	11,299.00	9,810.00	11,299.00	10,419.00	10,419.00	858,420.00
Transmission Link from hh to milpitas service area to Milpitas Servic	10,267.00	10,267.00	10,267.00	10,267.00	10,267.00	8,006.00	8,006.00	6,951.00	8,006.00	10,267.00	10,267.00	821,696.00
Transmission Link from hh to moffett ames to Stanford Moffett Field	3,536.00	3,536.00	3,536.00	3,536.00	3,536.00	2,617.00	2,617.00	2,275.00	2,617.00	3,536.00	3,510.00	281,785.00
Transmission Link from hh to mountain view to Mountain View Servi	12,734.20	12,641.80	12,641.80	12,641.80	12,641.80	10,940.00	10,940.00	9,495.40	10,925.10	12,641.80	12,641.80	1,020,204.80
Transmission Link from hh to palo alto to Palo Alto Service Area	13,259.60	13,427.00	13,427.00	13,427.00	13,427.00	12,577.20	12,577.20	11,111.00	12,234.90	13,427.00	13,427.00	1,090,414.40
Transmission Link from hh to santa clara to Santa Clara Service Are	5,250.00	5,250.00	5,250.00	5,250.00	5,250.00	2,004.00	2,004.00	1,740.00	2,004.00	5,250.00	5,250.00	404,004.00
Transmission Link from hh to sj muni n to SJ Muni North	5,250.00	5,250.00	5,250.00	5,250.00	5,250.00	3,392.00	3,392.00	2,943.00	3,392.00	5,250.00	5,250.00	414,738.00
Sum	62,605.80	62,680.90	62,680.90	62,680.90	62,680.90	52,365.20	52,365.20	45,654.40	52,008.00	62,680.90	62,654.90	5,042,960.20
Transmission Link Flow (Acre-foot)	Transmissio	Transmission I	Transmission	Transmission Li	Transmission	Transmission	Transmission	Transmission L	Transmission I	Transmission L	Transmission L	Transmission L
Transmission Link from local stevens creek flood release to Tributar	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local uvas flood release to Tributary Inflow 5	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from release from anderson to cvp pl to Andersoi	0	0	44,780.10	908.2	532.9	327.9	442.7	3,107.50	3,479.00	0	1,756.30	710,111.10
Transmission Link from release from calero to cvp pl to Calero PL re	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from release from pacheco to Tributary Inflow 6	0	0	0	0	0	0	0	0	0	0	0	0
Sum	0	0	44,780.10	908.2	532.9	327.9	442.7	3,107.50	3,479.00	0	1,756.30	710,111.10
District Surface Water	70,775.30	10,048.40	102,168.90	65,847.10	24,598.60	28,783.80	24,704.70	54,398.30	72,902.50	70,044.40	72,299.80	6,244,080.00
Streamflow (below node or reach listed) (All Rivers) (Acre-foot)	Streamflow (	Streamflow (be	Streamflow (b	Streamflow (bel	Streamflow (b	Streamflow (b	Streamflow (b	Streamflow (be	Streamflow (be	Streamflow (bel	Streamflow (bel	Streamflow (be
SWP 1 Supply 0 \ Headflow	61,999.10	10,999.80	96,998.60	29,999.60	29,999.60	56,999.20	21,999.70	27,999.60	23,999.60	63,999.10	60,999.10	4,939,927.40
cvp 0 source supply 0 \ Headflow	121,128.40	69,175.90	152,497.80	94,555.50	64,999.00	100,323.60	64,999.00	75,023.60	81,706.60	108,114.60	111,198.50	8,991,576.10
Demand Site Inflows and Outflows (Demand Site: NC Coyote Pond R	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site	Demand Site I	Demand Site	Demand Site Ir	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR Coyote	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from Lower Coyote Creek	10,950.00	6.6	9,606.80	10,950.00	3,438.40	320.4	782	5,326.80	6,373.40	10,950.00	10,950.00	807,532.90
Inflow from cvp 3 santa clara conduit	0	2,715.00	0	0	2,244.40	1,015.20	0	0	0	0	0	12,027.50
Outflow to North County Santa Clara Sbb	-10,950.00	-2,721.60	-9,606.80	-10,950.00	-5,682.80	-1,335.60	-782	-5,326.80	-6,373.40	-10,950.00	-10,950.00	-819,560.40
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Ford Pond Recharg	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site	Demand Site I	Demand Site	Demand Site Ir	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR Coyote	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from Lower Coyote Creek	0	0	0	0	0	0	0	0	0	0	0	0
Outflow to North County Santa Clara Sbb	0	0	0	0	0	0	0	0	0	0	0	0
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Los Gatos Ponds) (	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site	Demand Site I	Demand Site	Demand Site Ir	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR LG Ponds	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from Los Gatos Creek	1,797.10	3,969.90	0	8,741.20	3,806.80	4,295.00	3,376.30	4,338.80	8,470.00	2,529.50	0	374,170.60
Inflow from SWP 3 central pipeline	0	3,023.30	0	473.8	3,229.80	1,274.90	202.8	878	0	1,056.20	0	39,308.50
Inflow from cvp 7 central pl	21,051.00	3,337.10	0	662.9	3,629.50	4,257.40	565.2	5,077.00	2,846.40	1,999.50	0	111,801.60
Outflow to North County Santa Clara Sbb	-22,848.10	-10,330.30	0	-9,877.80	-10,666.10	-9,827.40	-4,144.40	-10,293.80	-11,316.50	-5,585.20	0	-525,280.70
Sum	0	0	0	0	0	0	0	0	0	0	0	0

WEAP Output Baseline 2015

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	2003	Sum
Demand Site Inflows and Outflows (Demand Site: Almaden and Gua	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from Guadalupe Creek	6,362.70	385.6	0	3,346.60	1,644.20	3,113.80	2,701.40	5,176.90	6,079.70	1,731.00	0	172,591.80
Inflow from IPR Guadalupe	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 4 almaden valley pipeline	0	2,449.30	0	1,178.70	2,420.20	749.5	0	0	0	73	0	14,920.70
Inflow from cvp 5 almaden valley pl	1,148.90	2,449.30	0	1,349.30	2,449.30	487.6	0	0	0	220	0	24,374.10
Outflow to North County Santa Clara Sbb	-7,511.60	-5,284.20	0	-5,874.70	-6,513.80	-4,350.90	-2,701.40	-5,176.90	-6,079.70	-2,024.00	0	-211,886.50
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Kooser) (Acre-foot)	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR Guadalupe	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 4 almaden valley pipeline	0	534.4	0	484.8	584	217.1	0	0	0	147.2	0	9,633.10
Inflow from cvp 5 almaden valley pl	671.3	534.4	0	484.8	584	115.7	0	292.8	576	147.2	0	17,901.70
Outflow to North County Santa Clara Sbb	-671.3	-1,068.80	0	-969.6	-1,168.00	-332.8	0	-292.8	-576	-294.4	0	-27,534.80
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Los Capitancillos P	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from Guadalupe Creek	2,141.90	23	2,488.40	1,184.80	597.9	1,132.30	982.3	1,365.50	1,681.70	2,144.00	2,642.80	181,248.20
Inflow from IPR Guadalupe	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 4 almaden valley pipeline	0	890.7	0	599.4	880.1	272.5	0	0	0	245.3	0	8,804.10
Inflow from cvp 5 almaden valley pl	449.6	890.7	0	653.3	890.7	177.3	0	0	0	245.3	0	14,043.40
Outflow to North County Santa Clara Sbb	-2,591.40	-1,804.30	-2,488.40	-2,437.50	-2,368.60	-1,582.10	-982.3	-1,365.50	-1,681.70	-2,634.70	-2,642.80	-204,095.70
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Overfelt Ponds) (A	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR Penitencia	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from Penitencia Creek	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 2 SBA pipeline	1,001.60	1,460.00	1,460.00	1,460.00	1,460.00	471.2	67.3	460.1	782.6	1,460.00	1,460.00	109,707.80
Outflow to North County Santa Clara Sbb	-1,001.60	-1,460.00	-1,460.00	-1,460.00	-1,460.00	-471.2	-67.3	-460.1	-782.6	-1,460.00	-1,460.00	-109,707.80
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Penitencia Ponds)	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR Penitencia	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from Penitencia Creek	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 2 SBA pipeline	1,702.60	2,482.00	2,482.00	2,482.00	2,482.00	801.1	114.3	782.2	1,330.40	2,482.00	2,482.00	186,503.30
Outflow to North County Santa Clara Sbb	-1,702.60	-2,482.00	-2,482.00	-2,482.00	-2,482.00	-801.1	-114.3	-782.2	-1,330.40	-2,482.00	-2,482.00	-186,503.30
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link Flow (Acre-foot)	Transmissio	Transmission	Transmission	Transmission L	Transmission	Transmission	Transmission	Transmission L	Transmission	Transmission L	Transmission L	Transmission L
Transmission Link from Uvas release to Llagas recharge to Church	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from anderson release to butterfield to Butterfiel	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from anderson release to madronne to Madrone	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 1 to Rinconanda WTP	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 10 to NC IWRP recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 2 to San Tomas Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 3 to Wildcat Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0

WEAP Output Baseline 2015

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	2003	Sum
Transmission Link from lex pl 4 to Saratoga Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 5 to Rodeo Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 6 to Calabazas Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 7 to Regnart Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 8 to Mcclellan Pond recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 9 to Stevens Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local 2 coyote pond recharge to Coyote Por	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local 2 guad creek to Guadalupe creek	5,610.80	340	7,081.00	4,153.90	1,449.90	2,745.80	2,382.20	4,565.10	5,361.20	6,822.60	7,081.00	511,460.40
Transmission Link from local 2 lower coyote recharge to lower coyo	1,460.00	338.9	1,280.90	1,460.00	1,128.50	429.5	574.7	856	1,096.70	1,460.00	1,460.00	114,342.50
Transmission Link from local 2 overfelt to Overfelt Ponds	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local 2 pen ponds to Penitencia Ponds	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local 2 upper coyote to NC Upper Coyote R	171.7	34.5	0	146.9	138.3	45.9	64.3	111.3	135.3	41.8	0	4,735.40
Transmission Link from local Chesbro release to recharge to Churcl	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local Uvas release to recharge to Uvas Rec	10,117.80	1,787.30	5,959.80	8,213.30	3,832.20	9,556.80	6,995.30	8,713.50	10,117.80	9,286.20	9,258.50	754,979.80
Transmission Link from local alamitos creek to Alamitos Creek rech	1,106.50	101.7	1,900.00	931.7	447	849.2	736.8	1,042.90	1,405.70	1,528.50	2,094.30	140,008.00
Transmission Link from local anderson 2 coyote ponds to NC Coyot	10,950.00	6.6	9,606.80	10,950.00	3,438.40	320.4	782	5,326.80	6,373.40	10,950.00	10,950.00	807,532.90
Transmission Link from local anderson release to main ave ponds t	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local anderson res to Church Pond and Llag	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local anderson res to Lower Llagas Recharg	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local calabasas creek to Calabazas Creek F	1,149.00	236	1,237.10	141	353	200	50	374.4	1,015.20	1,869.00	1,869.00	71,553.50
Transmission Link from local calero creek to Calero Creek recharge	723	43	800.6	535.3	186.8	353.8	307	588.3	689	879.2	912.5	65,324.20
Transmission Link from local guadalupe 1 to Los Capitancillos Pond	2,141.90	23	2,488.40	1,184.80	597.9	1,132.30	982.3	1,365.50	1,681.70	2,144.00	2,642.80	181,248.20
Transmission Link from local guadaupe 2 to Almaden and Guadalup	6,362.70	385.6	0	3,346.60	1,644.20	3,113.80	2,701.40	5,176.90	6,079.70	1,731.00	0	172,591.80
Transmission Link from local lg creek diversion to Los Gatos Ck rec	0	326.7	5,123.60	4,634.60	219.3	496	82	496	2,416.00	4,123.30	5,840.00	375,329.60
Transmission Link from local lg pond diversion to Los Gatos Ponds	1,797.10	3,969.90	0	8,741.20	3,806.80	4,295.00	3,376.30	4,338.80	8,470.00	2,529.50	0	374,170.60
Transmission Link from local lower Llagas recharge to Lower Llagas	3,008.70	294.6	4,257.00	1,503.80	383	484.2	1,466.60	4,340.00	6,435.90	3,725.40	6,613.20	401,849.40
Transmission Link from local penitencia creek to Penitencia Creek F	1,335.80	164	0	427	334	484	227	410	747	23	0	24,988.50
Transmission Link from local regnart creek to Regnart Creek Recha	276.7	14	310.1	15	20	4	1	73.3	189.4	451.7	451.7	16,765.90
Transmission Link from local release 2 ford ponds to Ford Pond Re	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local release 2 upper coyote to Coyote Upp	15,808.30	0	7,282.40	11,456.30	1,444.10	514.3	0	8,724.90	10,195.90	11,337.50	10,228.70	815,832.70
Transmission Link from local rodeo creek to Rodeo Creek Recharge	67.6	2	126	2	3	0	0	16	50	178.7	178.7	5,016.10
Transmission Link from local ross creek recharge to Ross Creek Re	863.8	290	1,032.70	487	421	364	364	517	633	888	888	57,187.40
Transmission Link from local san tomoa creek to San Tomas Creek	691.4	188.5	688	299.1	271.5	170.3	233.9	311.8	388.5	771.9	771.9	48,294.40
Transmission Link from local saratoga div to NC IWRP recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local saratogo creek to Saratoga Creek Rec	2,683.40	648	2,968.60	1,133.00	593	1,203.20	981	958.2	1,846.00	3,512.20	3,512.20	182,707.60
Transmission Link from local silver creek to Silver Creek Recharge	722.4	85	640.5	715	331	93	262	58	103	730	730	52,699.90
Transmission Link from local stevens creek to Stevens Creek Recha	2,532.30	599.6	3,202.30	3,650.00	2,484.30	1,437.40	1,362.20	2,691.50	3,631.60	3,650.00	3,650.00	271,518.90
Transmission Link from local thompson creek to Thompson Creek F	750.7	47	955.7	617	362	52	178	32	109	927	927	53,634.80
Transmission Link from local wildcat creek to Wildcat Creek Rechar	443.5	122.5	447.2	194.4	176.5	110.7	152.1	202.7	252.5	484.1	484.1	30,196.10
Sum	70,775.30	10,048.40	57,388.80	64,938.90	24,065.70	28,455.90	24,262.00	51,290.80	69,423.50	70,044.40	70,543.50	5,533,968.40
Demand Reduction Factor	0	0	0	0	0	0	0	0	-0.05	0	0	

WEAP Output Baseline 2020

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	2003	Sum
Groundwater Storage (Acre-foot)	Groundwate	Groundwater S	Groundwater	Groundwater St	Groundwater St	Groundwater	Groundwater	Groundwater S	Groundwater	Groundwater St	Groundwater Storage (Acre-foo	
Coyote Subbasin	23,005.30	17,699.50	23,241.60	23,231.20	23,072.60	12,159.40	318.8	0	1,180.00	24,122.30	23,300.30	
LlagasSubbasin	73,581.40	119,565.60	143,059.90	134,284.80	126,814.60	121,568.50	116,068.40	118,206.80	121,140.70	142,736.50	140,318.40	
North County Santa Clara Sbb	303,205.00	312,711.00	345,123.50	314,327.50	308,704.70	286,461.00	222,218.20	160,041.20	122,285.90	332,417.90	327,778.00	
Sum	399,791.70	449,976.10	511,425.00	471,843.50	458,591.90	420,188.90	338,605.50	278,248.00	244,606.60	499,276.70	491,396.70	
Reservoir Storage Volume (Acre-foot)	Reservoir St	Reservoir Stor	Reservoir Sto	Reservoir Stora	Reservoir Stora	Reservoir Stor	Reservoir Sto	Reservoir Stora	Reservoir Stor	Reservoir Stora	Reservoir Storage Volume (Acr	
Almaden Reservoir	200	200	200	200	200	200	200	200	200	677	200	
Anderson Reservoir	22,000.00	22,000.00	71,091.60	43,252.00	21,948.30	21,954.30	21,550.40	22,000.00	22,000.00	57,311.60	47,898.30	
Calero Reservoir	1,000.00	769.1	8,900.00	1,000.00	932.6	1,000.00	1,000.00	996.5	2,236.00	6,365.60	8,900.00	
Chesbro Reservoir	500	500	4,586.00	500	436.5	451.7	500	500	1,293.40	4,586.00	2,817.10	
Coyote Reservoir	1,000.00	1,000.00	5,200.00	5,200.00	997.7	993.7	910.4	1,000.00	1,000.00	5,200.00	5,200.00	
Guadalupe Reservoir	200	168.9	1,700.00	200	200	200	200	200	200	1,700.00	722.3	
Lexington Reservoir	2,621.40	4,641.50	16,000.00	8,001.60	5,243.00	3,950.50	3,053.90	5,350.70	7,835.60	15,514.60	15,889.00	
Pacheco Reservoir	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	
Stevens Creek Reservoir	31	181.5	2,368.00	583.6	31	31	31	31	1,609.50	2,368.00	2,368.00	
Uvas Reservoir	2,524.90	2,824.10	5,987.70	500	1,104.10	557.6	500	3,963.60	6,258.00	6,258.00	6,258.00	
cvp caryover	0	318.4	0	59,641.30	2,137.20	0	0	0	0	67,209.60	75,000.00	
cvp overflow not used	0	488,158.90	752,266.20	752,266.20	752,266.20	752,266.20	752,266.20	752,266.20	752,266.20	824,152.70	824,152.70	
semitropic reservoir	246,301.10	340,985.40	350,000.00	350,000.00	350,000.00	336,681.10	300,944.40	263,562.70	229,317.30	349,997.00	350,000.00	
swp caryyover	0	0	0	22,968.30	1,424.80	0	0	0	0	44,806.40	50,000.00	
swp overflow not used	0	284,355.90	466,001.60	466,001.60	466,001.60	466,001.60	466,001.60	466,001.60	466,001.60	471,238.80	474,360.60	
Sum	281,378.40	1,151,103.70	1,689,301.10	1,715,314.60	1,607,923.00	1,589,287.60	1,552,158.10	1,521,072.30	1,495,217.60	1,862,385.20	1,868,766.00	
Groundwater Natural Recharge (Acre-foot)	Groundwate	Groundwater N	Groundwater	Groundwater Na	Groundwater N	Groundwater	Groundwater	Groundwater N	Groundwater N	Groundwater N	Groundwater N	Groundwater N
Coyote Subbasin	2,535.00	1,326.90	5,335.00	1,838.80	1,544.90	1,101.90	1,457.80	2,541.20	3,273.60	2,141.80	1,990.30	183,393.10
LlagasSubbasin	18,129.30	21,464.50	32,000.40	21,397.30	20,951.50	19,716.10	21,162.80	21,993.90	19,018.50	23,642.90	22,257.30	1,802,330.50
North County Santa Clara Sbb	38,509.30	51,285.70	51,781.40	36,433.90	41,905.40	42,780.40	56,319.30	26,833.40	15,441.40	32,270.70	25,956.40	3,028,956.00
Sum of Natural Groundwater Recharge	59,173.60	74,077.10	89,116.80	59,670.00	64,401.80	63,598.40	78,939.80	51,368.50	37,733.50	58,055.40	50,204.00	5,014,679.70
Transmission Link Flow (Acre-foot)	Transmissio	Transmission I	Transmission	Transmission Li	Transmission L	Transmission	Transmission	Transmission L	Transmission I	Transmission L	Transmission L	Transmission L
Transmission Link from lake elsman to sjw west to SJ Water Company	12,613.80	1,362.00	14,943.80	3,997.90	3,455.90	6,503.90	3,720.90	6,431.90	3,455.90	7,405.90	15,947.80	815,457.00
Transmission Link from stanford water to Stanford Moffett Field Ames	823	64	692	187	160	303	174	296	160	681	976	51,733.20
Sum	13,436.80	1,426.00	15,635.80	4,184.90	3,615.90	6,806.90	3,894.90	6,727.90	3,615.90	8,086.90	16,923.80	867,190.30
Transmission Link Flow (Acre-foot)	Transmissio	Transmission I	Transmission	Transmission Li	Transmission L	Transmission	Transmission	Transmission L	Transmission I	Transmission L	Transmission L	Transmission L
Transmission Link from deliver recycled to gilroy to Gilroy Service Ar	478	478	478	478	478	478	478	478	478	478	478	39,194.50
Transmission Link from recycle pa to palo alto to Palo Alto Service Ar	1,055.80	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	69,136.20
Transmission Link from recycle sv to sunnyvale to Sunnyvale Service Ar	1,801.00	1,801.00	1,801.00	1,801.00	1,801.00	1,801.00	1,801.00	1,801.00	1,801.00	1,801.00	1,801.00	147,679.80
Transmission Link from recycled 1 to Llagas Ag	1,122.00	1,122.00	1,122.00	1,122.00	1,122.00	1,122.00	1,122.00	1,122.00	1,122.00	1,122.00	1,122.00	92,003.60
Transmission Link from recycled SB to SJWC to SJ Water Company	2,157.90	2,157.90	2,157.90	2,157.90	2,157.90	2,157.90	2,157.90	2,157.90	2,157.90	2,157.90	2,157.90	176,946.60
Transmission Link from recycled SB to santa clara to Santa Clara Servi	4,316.30	4,316.30	4,316.30	4,316.30	4,316.30	4,316.30	4,316.30	4,316.30	4,316.30	4,316.30	4,316.30	353,933.30
Transmission Link from recycled pa to mountain view to Mountain View S	994.2	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	98,961.30
Transmission Link from recycled sb to milpitas to Milpitas Service Are	1,660.10	1,660.10	1,660.10	1,660.10	1,660.10	1,660.10	1,660.10	1,660.10	1,660.10	1,660.10	1,660.10	136,128.20
Transmission Link from recycled sb to sj muni north to SJ Muni North	5,926.60	6,138.20	6,138.20	6,138.20	6,138.20	6,138.20	6,138.20	6,138.20	6,138.20	6,138.20	6,138.20	503,122.40
Transmission Link from recycled sb to sjMuni edenvale to SJ Muni servi	2,540.00	2,328.30	2,328.30	2,328.30	2,328.30	2,328.30	2,328.30	2,328.30	2,328.30	2,328.30	2,328.30	191,131.50

WEAP Output Baseline 2020

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	2003	Sum
Sum	22,051.70	22,051.70	22,051.70	22,051.70	22,051.70	22,051.70	22,051.70	22,051.70	22,051.70	22,051.70	22,051.70	1,808,237.40
Transmission Link Flow (Acre-foot)	Transmissio	Transmission I	Transmission	Transmission Li	Transmission L	Transmission	Transmission	Transmission L	Transmission I	Transmission L	Transmission L	Transmission L
Transmission Link from hh to PHills to Purisma Hills Service Area	1,842.00	1,842.00	1,842.00	1,842.00	1,842.00	1,481.00	1,481.00	1,281.00	1,481.00	1,842.00	1,842.00	147,756.00
Transmission Link from hh to Sunnyvale to Sunnyvale Service Area	10,158.00	10,158.00	10,158.00	10,158.00	10,158.00	10,945.00	10,945.00	9,458.00	10,945.00	10,158.00	10,158.00	836,278.00
Transmission Link from hh to milpitas service area to Milpitas Service	10,010.00	10,010.00	10,010.00	10,010.00	10,010.00	7,754.00	7,754.00	6,702.00	7,754.00	10,010.00	10,010.00	800,668.00
Transmission Link from hh to moffett ames to Stanford Moffett Field Am	3,445.00	3,445.00	3,445.00	3,445.00	3,445.00	2,539.00	2,539.00	2,193.00	2,539.00	3,445.00	3,445.00	274,550.00
Transmission Link from hh to mountain view to Mountain View Service Ar	12,728.40	12,651.80	12,651.80	12,651.80	12,651.80	10,594.90	10,594.90	9,150.40	10,596.00	12,651.80	12,651.80	1,018,187.10
Transmission Link from hh to palo alto to Palo Alto Service Area	13,324.40	13,503.90	13,503.90	13,503.90	13,503.90	12,337.30	12,337.30	10,709.00	12,105.10	13,503.90	13,503.90	1,094,193.70
Transmission Link from hh to santa clara to Santa Clara Service Area	5,119.00	5,119.00	5,119.00	5,119.00	5,119.00	1,942.00	1,942.00	1,679.00	1,942.00	5,119.00	5,119.00	393,816.00
Transmission Link from hh to sj muni n to SJ Muni North	5,119.00	5,119.00	5,119.00	5,119.00	5,119.00	3,283.00	3,283.00	2,838.00	3,283.00	5,119.00	5,119.00	404,180.00
Sum	61,745.80	61,848.70	61,848.70	61,848.70	61,848.70	50,876.20	50,876.20	44,010.40	50,645.00	61,848.70	61,848.70	4,969,628.80
Transmission Link Flow (Acre-foot)	Transmissio	Transmission I	Transmission	Transmission Li	Transmission L	Transmission	Transmission	Transmission L	Transmission I	Transmission L	Transmission L	Transmission L
Transmission Link from local stevens creek flood release to Tributary	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local uvas flood release to Tributary Inflow 5	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from release from anderson to cvp pl to Anderson PL	0	3,510.20	60,192.40	1,291.20	2,769.00	93.5	159.1	3,321.40	3,895.10	88.2	84	631,544.80
Transmission Link from release from calero to cvp pl to Calero PL rele	0	0	0	922.3	0	0	0	0	248.7	0	0	6,348.10
Transmission Link from release from pacheco to Tributary Inflow 6	0	0	0	0	0	0	0	0	0	0	0	0
Sum	0	3,510.20	60,192.40	2,213.50	2,769.00	93.5	159.1	3,321.40	4,143.80	88.2	84	637,892.90
Streamflow (below node or reach listed) (All Rivers) (Acre-foot)	Streamflow (	Streamflow (be	Streamflow (b	Streamflow (bel	Streamflow (bel	Streamflow (b	Streamflow (b	Streamflow (be	Streamflow (be	Streamflow (be	Streamflow (bel	Streamflow (bel
SWP 1 Supply 0 \ Headflow	61,999.10	10,999.80	96,998.60	29,999.60	29,999.60	56,999.20	21,999.70	27,999.60	23,999.60	63,999.10	60,999.10	4,939,927.40
cvp 0 source supply 0 \ Headflow	121,128.40	69,175.90	152,497.80	94,555.50	64,999.00	100,323.60	64,999.00	75,023.60	81,706.60	108,114.60	111,198.50	8,991,576.10
Demand Site Inflows and Outflows (Demand Site: NC Coyote Pond Rechar	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site Ir	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR Coyote	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from Lower Coyote Creek	10,370.70	4,087.80	9,376.80	10,950.00	8,819.60	82.4	782	4,155.40	4,546.80	10,950.00	10,950.00	805,606.30
Inflow from cvp 3 santa clara conduit	579.3	1,380.00	0	0	1,215.40	572.2	0	0	463.9	0	0	7,120.80
Outflow to North County Santa Clara Sbb	-10,950.00	-5,467.80	-9,376.80	-10,950.00	-10,035.00	-654.6	-782	-4,155.40	-5,010.60	-10,950.00	-10,950.00	-812,727.10
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Ford Pond Recharge) (A	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site Ir	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR Coyote	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from Lower Coyote Creek	0	0	0	0	0	0	0	0	0	0	0	0
Outflow to North County Santa Clara Sbb	0	0	0	0	0	0	0	0	0	0	0	0
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Los Gatos Ponds) (Acre-	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site Ir	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR LG Ponds	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from Los Gatos Creek	1,797.10	3,969.90	0	8,307.00	3,917.50	4,365.00	3,388.80	4,360.30	8,498.40	4,462.20	0	409,740.70
Inflow from SWP 3 central pipeline	0	3,023.30	0	155.6	3,180.70	1,305.70	0	555.8	0	1,325.70	0	36,288.20
Inflow from cvp 7 central pl	20,668.00	3,337.10	0	535	3,629.50	4,387.30	282.4	3,328.40	2,720.70	1,369.40	0	127,551.90
Outflow to North County Santa Clara Sbb	-22,465.10	-10,330.30	0	-8,997.60	-10,727.60	-10,057.90	-3,671.20	-8,244.50	-11,219.00	-7,157.30	0	-573,580.80
Sum	0	0	0	0	0	0	0	0	0	0	0	0

WEAP Output Baseline 2020

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	2003	Sum
Demand Site Inflows and Outflows (Demand Site: Almaden and Guadalupe	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site In	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from Guadalupe Creek	6,362.70	385.6	0	4,331.50	1,644.20	3,113.80	2,701.40	5,951.50	7,656.60	2,706.00	0	211,114.60
Inflow from IPR Guadalupe	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 4 almaden valley pipeline	0	2,676.70	0	642.1	2,420.20	493	0	0	0	0	0	10,184.10
Inflow from cvp 5 almaden valley pl	582.7	2,676.70	0	718.8	2,449.30	405.4	0	0	0	0	0	12,471.70
Outflow to North County Santa Clara Sbb	-6,945.40	-5,738.90	0	-5,692.50	-6,513.80	-4,012.30	-2,701.40	-5,951.50	-7,656.60	-2,706.00	0	-233,770.30
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Kooser) (Acre-foot)	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site In	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR Guadalupe	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 4 almaden valley pipeline	0	584	0	441.6	584	152.5	0	0	0	196.8	0	9,751.90
Inflow from cvp 5 almaden valley pl	477.3	584	0	441.6	584	116.7	0	292.8	576	196.8	0	18,917.10
Outflow to North County Santa Clara Sbb	-477.3	-1,168.00	0	-883.2	-1,168.00	-269.3	0	-292.8	-576	-393.6	0	-28,669.10
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Los Capitancillos Ponds)	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site In	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from Guadalupe Creek	2,141.90	23	2,500.50	1,349.20	597.9	1,132.30	982.3	1,432.80	1,914.50	2,144.00	2,775.40	188,116.70
Inflow from IPR Guadalupe	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 4 almaden valley pipeline	0	973.3	0	595.9	880.1	179.3	0	0	0	162.7	0	8,111.20
Inflow from cvp 5 almaden valley pl	233.5	973.3	0	653.3	890.7	147.4	0	0	0	162.7	0	11,129.50
Outflow to North County Santa Clara Sbb	-2,375.40	-1,969.70	-2,500.50	-2,598.40	-2,368.60	-1,459.00	-982.3	-1,432.80	-1,914.50	-2,469.30	-2,775.40	-207,357.40
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Overfelt Ponds) (Acre-foo	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site In	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR Penitencia	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from Penitencia Creek	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 2 SBA pipeline	733.5	1,460.00	1,460.00	1,460.00	1,460.00	499.8	19.6	329.4	551.1	1,460.00	1,460.00	107,035.80
Outflow to North County Santa Clara Sbb	-733.5	-1,460.00	-1,460.00	-1,460.00	-1,460.00	-499.8	-19.6	-329.4	-551.1	-1,460.00	-1,460.00	-107,035.80
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Penitencia Ponds) (Acre-	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site In	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR Penitencia	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from Penitencia Creek	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 2 SBA pipeline	1,247.00	2,482.00	2,482.00	2,482.00	2,482.00	849.7	33.3	560	936.9	2,482.00	2,482.00	181,960.90
Outflow to North County Santa Clara Sbb	-1,247.00	-2,482.00	-2,482.00	-2,482.00	-2,482.00	-849.7	-33.3	-560	-936.9	-2,482.00	-2,482.00	-181,960.90
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link Flow (Acre-foot)	Transmissio	Transmission L	Transmission	Transmission Li	Transmission L	Transmission	Transmission	Transmission L	Transmission L	Transmission L	Transmission L	Transmission L
Transmission Link from Uvas release to Llagas recharge to Church Pond	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from anderson release to butterfield to Butterfield	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from anderson release to madronne to Madrone Ponds	7,260.80	2,754.00	1,454.00	3,006.00	3,339.70	686.4	207.3	2,337.50	2,959.90	2,919.90	2,550.40	289,725.70
Transmission Link from lex pl 1 to Rinconanda WTP	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 10 to NC IWRP recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 2 to San Tomas Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 3 to Wildcat Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0

WEAP Output Baseline 2020

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	2003	Sum
Transmission Link from lex pl 4 to Saratoga Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 5 to Rodeo Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 6 to Calabazas Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 7 to Regnart Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 8 to Mcclellan Pond recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 9 to Stevens Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local 2 coyote pond recharge to Coyote Pond Re	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local 2 guad creek to Guadalupe creek	5,610.80	340	7,081.00	5,546.20	1,449.90	2,745.80	2,382.20	5,248.20	6,751.80	7,081.00	7,081.00	530,633.70
Transmission Link from local 2 lower coyote recharge to lower coyote r	1,460.00	1,048.10	1,250.20	1,460.00	1,216.00	429.5	574.7	835.7	1,046.70	1,460.00	1,460.00	115,202.60
Transmission Link from local 2 overfelt to Overfelt Ponds	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local 2 pen ponds to Penitencia Ponds	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local 2 upper coyote to NC Upper Coyote Rechar	171.7	128.5	0	133.1	147.3	45.9	64.3	108.4	128.5	57.2	0	5,280.60
Transmission Link from local Chesbro release to recharge to Church Pon	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local Uvas release to recharge to Uvas Recharge	10,117.80	1,787.30	3,381.80	7,392.80	3,832.20	9,556.80	6,995.30	8,713.50	10,117.80	6,791.40	5,932.10	616,579.60
Transmission Link from local alamitos creek to Alamitos Creek recharge	1,106.50	101.7	1,875.40	949.7	447	849.2	736.8	1,151.40	1,482.20	1,627.70	2,160.70	145,137.10
Transmission Link from local anderson 2 coyote ponds to NC Coyote Pon	10,370.70	4,087.80	9,376.80	10,950.00	8,819.60	82.4	782	4,155.40	4,546.80	10,950.00	10,950.00	805,606.30
Transmission Link from local anderson release to main ave ponds to Mai	2,670.60	786	1,069.60	765	850	214.6	76.3	670.5	861.6	2,147.90	1,876.10	157,507.30
Transmission Link from local anderson res to Church Pond and Llagas Re	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local anderson res to Lower Llagas Recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local calabasas creek to Calabazas Creek Recha	1,149.00	236	1,180.60	141	353	200	50	374.4	1,015.20	1,869.00	1,869.00	71,367.60
Transmission Link from local calero creek to Calero Creek recharge	723	43	781.4	714.7	186.8	353.8	307	676.3	870.1	912.5	912.5	67,750.70
Transmission Link from local guadalupe 1 to Los Capitancillos Ponds	2,141.90	23	2,500.50	1,349.20	597.9	1,132.30	982.3	1,432.80	1,914.50	2,144.00	2,775.40	188,116.70
Transmission Link from local guadaupe 2 to Almaden and Guadalupe Po	6,362.70	385.6	0	4,331.50	1,644.20	3,113.80	2,701.40	5,951.50	7,656.60	2,706.00	0	211,114.60
Transmission Link from local lg creek diversion to Los Gatos Ck rechar	0	326.7	5,001.00	4,718.00	231	496	86.4	496	2,416.00	4,072.40	5,840.00	366,624.40
Transmission Link from local lg pond diversion to Los Gatos Ponds	1,797.10	3,969.90	0	8,307.00	3,917.50	4,365.00	3,388.80	4,360.30	8,498.40	4,462.20	0	409,740.70
Transmission Link from local lower Llagas recharge to Lower Llagas Rec	3,008.70	294.6	2,415.60	1,969.50	383	484.2	1,466.60	4,340.00	6,435.90	4,023.90	4,237.20	341,556.70
Transmission Link from local penitencia creek to Penitencia Creek Rech	1,335.80	164	0	390	334	484	227	410	747	89	0	27,995.50
Transmission Link from local regnart creek to Regnart Creek Recharge	276.7	14	292.6	15	20	4	1	73.3	189.4	451.7	451.7	16,723.10
Transmission Link from local release 2 ford ponds to Ford Pond Recharg	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local release 2 upper coyote to Coyote Upper Re	15,441.50	3,220.50	7,282.40	11,713.70	10,406.90	95.3	0	6,756.60	8,300.10	11,689.90	10,486.10	887,275.10
Transmission Link from local rodeo creek to Rodeo Creek Recharge	67.6	2	107.5	2	3	0	0	16	50	178.7	178.7	4,987.60
Transmission Link from local ross creek recharge to Ross Creek Recharg	863.8	290	986.8	487	421	364	364	517	633	888	888	57,033.10
Transmission Link from local san tomoa creek to San Tomas Creek Rech	691.4	188.5	665	299.1	271.5	170.3	233.9	311.8	388.5	771.9	771.9	48,196.00
Transmission Link from local saratoga div to NC IWRP recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local saratogo creek to Saratoga Creek Recharge	2,683.40	648	2,859.80	1,133.00	593	1,203.20	981	958.2	1,846.00	3,512.20	3,512.20	182,235.40
Transmission Link from local silver creek to Silver Creek Recharge	722.4	85	625.1	715	331	93	262	58	103	730	730	52,628.00
Transmission Link from local stevens creek to Stevens Creek Recharge	2,532.30	599.6	3,125.60	3,650.00	2,484.30	1,437.40	1,362.20	2,691.50	3,631.60	3,650.00	3,650.00	271,159.30
Transmission Link from local thompson creek to Thompson Creek Recha	750.7	47	932.7	617	362	52	178	32	109	927	927	53,536.50
Transmission Link from local wildcat creek to Wildcat Creek Recharge	443.5	122.5	432.3	194.4	176.5	110.7	152.1	202.7	252.5	484.1	484.1	30,132.10
Sum	79,760.50	21,693.20	54,677.60	70,950.00	42,818.30	28,769.80	24,562.40	52,879.00	72,952.00	76,597.50	69,724.00	5,953,845.80
Demand Reduction Factor	0	0	0	0	0	0	0	0	-0.05	0	0	

WEAP Output Baseline 2025

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	2003	Sum
Groundwater Storage (Acre-foot)	Groundwate	Groundwater S	Groundwater	Groundwater St	Groundwater St	Groundwater	Groundwater	Groundwater S	Groundwater S	Groundwater St	Groundwater Storage (Acre-foo	
Coyote Subbasin	22,111.50	14,353.40	23,866.70	23,178.70	19,608.40	7,643.70	0	0	1,178.80	24,108.70	23,260.80	
LlagasSubbasin	73,398.80	120,256.60	142,175.70	134,047.30	126,897.50	121,744.40	116,059.50	117,242.60	120,547.30	142,736.10	140,411.10	
North County Santa Clara Sbb	296,671.20	304,719.30	343,052.20	316,039.60	291,565.10	260,493.10	189,477.80	121,804.50	95,675.10	332,339.00	328,484.80	
Sum	392,181.60	439,329.40	509,094.60	473,265.50	438,070.90	389,881.10	305,537.20	239,047.00	217,401.20	499,183.80	492,156.70	
Reservoir Storage Volume (Acre-foot)	Reservoir St	Reservoir Stor	Reservoir Stor	Reservoir Stora	Reservoir Stora	Reservoir Stor	Reservoir Sto	Reservoir Stora	Reservoir Stor	Reservoir Stora	Reservoir Storage Volume (Acr	
Almaden Reservoir	200	200	200	200	200	200	200	200	200	677	200	
Anderson Reservoir	22,000.00	22,000.00	71,091.60	41,708.50	21,948.30	21,954.30	21,550.40	22,000.00	22,000.00	55,321.50	44,690.00	
Calero Reservoir	1,000.00	744.4	8,900.00	1,000.00	932.6	1,000.00	1,000.00	996.5	2,236.00	5,335.90	8,900.00	
Chesbro Reservoir	500	500	4,586.00	500	436.5	451.7	500	500	1,293.40	4,586.00	2,817.10	
Coyote Reservoir	1,000.00	1,000.00	5,200.00	5,200.00	997.7	993.7	910.4	1,000.00	1,000.00	5,200.00	5,200.00	
Guadalupe Reservoir	200	168.9	1,700.00	200	200	200	200	200	200	1,700.00	301.9	
Lexington Reservoir	2,621.40	4,383.90	16,000.00	7,701.50	5,080.90	3,858.20	3,004.10	5,322.30	7,835.60	16,000.00	15,265.40	
Pacheco Reservoir	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	
Stevens Creek Reservoir	31	181.5	2,368.00	583.6	31	31	31	31	1,609.50	2,368.00	2,368.00	
Uvas Reservoir	2,524.90	2,824.10	5,987.70	732.8	1,104.10	557.6	500	3,963.60	6,258.00	6,258.00	6,258.00	
cvp caryover	0	0	0	37,391.70	0	0	0	0	0	37,564.10	41,313.60	
cvp overflow not used	0	308,426.80	547,898.80	547,898.80	547,898.80	547,898.80	547,898.80	547,898.80	547,898.80	598,528.70	598,528.70	
semitropic reservoir	246,169.10	334,460.80	350,000.00	350,000.00	335,131.30	319,975.30	284,238.70	246,569.00	211,990.60	348,829.60	349,884.70	
swp caryyover	0	0	0	13,843.20	0	0	0	0	0	21,012.40	27,542.40	
swp overflow not used	0	170,245.10	335,729.90	335,729.90	335,729.90	335,729.90	335,729.90	335,729.90	335,729.90	340,012.80	340,012.80	
Sum	281,246.40	850,135.50	1,354,662.00	1,347,690.00	1,254,691.10	1,237,850.50	1,200,763.40	1,169,411.20	1,143,251.70	1,448,394.00	1,448,282.60	
Groundwater Natural Recharge (Acre-foot)	Groundwate	Groundwater N	Groundwater	Groundwater Na	Groundwater N	Groundwater	Groundwater	Groundwater N	Groundwater N	Groundwater N	Groundwater N	Groundwater N
Coyote Subbasin	2,535.00	1,326.90	5,335.00	1,838.80	1,544.90	1,101.90	1,457.80	2,541.20	3,273.60	2,141.80	1,990.30	183,393.10
LlagasSubbasin	18,129.30	21,464.50	32,000.40	21,397.30	20,951.50	19,716.10	21,162.80	21,993.90	19,018.50	23,642.90	22,257.30	1,802,330.50
North County Santa Clara Sbb	38,509.30	51,285.70	51,781.40	36,433.90	41,905.40	42,780.40	56,319.30	26,833.40	15,441.40	32,270.70	25,956.40	3,028,956.00
Sum	59,173.60	74,077.10	89,116.80	59,670.00	64,401.80	63,598.40	78,939.90	51,368.50	37,733.50	58,055.40	50,204.00	5,014,679.70
Transmission Link Flow (Acre-foot)	Transmissio	Transmission	Transmission	Transmission Li	Transmission L	Transmission	Transmission	Transmission L	Transmission	Transmission L	Transmission L	Transmission L
Transmission Link from lake elsman to sjw west to SJ Water Company	12,613.80	1,362.00	14,943.80	3,997.90	3,455.90	6,503.90	3,720.90	6,431.90	3,455.90	7,405.90	15,947.80	815,457.00
Transmission Link from stanford water to Stanford Moffett Field Ames	823	64	692	187	160	303	174	296	160	681	976	51,733.20
Sum	13,436.80	1,426.00	15,635.80	4,184.90	3,615.90	6,806.90	3,894.90	6,727.90	3,615.90	8,086.90	16,923.80	867,190.30
Transmission Link Flow (Acre-foot)	Transmissio	Transmission	Transmission	Transmission Li	Transmission L	Transmission	Transmission	Transmission L	Transmission	Transmission L	Transmission L	Transmission L
Transmission Link from deliver recycled to gilroy to Gilroy Service Ar	829	829	829	829	829	829	829	829	829	829	829	67,975.80
Transmission Link from recycle pa to palo alto to Palo Alto Service Ar	1,055.80	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	69,136.20
Transmission Link from recycle sv to sunnyvale to Sunnyvale Service Ar	1,900.00	1,900.00	1,900.00	1,900.00	1,900.00	1,900.00	1,900.00	1,900.00	1,900.00	1,900.00	1,900.00	155,797.70
Transmission Link from recycled 1 to Llagas Ag	1,172.00	1,172.00	1,172.00	1,172.00	1,172.00	1,172.00	1,172.00	1,172.00	1,172.00	1,172.00	1,172.00	96,103.80
Transmission Link from recycled SB to SJWC to SJ Water Company	2,624.20	2,699.30	2,699.30	2,699.30	2,699.30	2,560.70	2,560.70	2,560.70	2,615.40	2,699.30	2,699.30	220,952.90
Transmission Link from recycled SB to santa clara to Santa Clara Servi	4,531.00	4,531.00	4,531.00	4,531.00	4,531.00	4,531.00	4,531.00	4,531.00	4,531.00	4,531.00	4,531.00	371,542.00
Transmission Link from recycled pa to mountain view to Mountain View S	994.2	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	98,961.30
Transmission Link from recycled sb to milpitas to Milpitas Service Are	1,773.00	1,773.00	1,773.00	1,773.00	1,773.00	1,773.00	1,773.00	1,773.00	1,773.00	1,773.00	1,773.00	145,386.00
Transmission Link from recycled sb to sj muni north to SJ Muni North	7,521.00	7,716.80	7,716.80	7,716.80	7,716.80	7,855.40	7,855.40	7,855.40	7,800.70	7,716.80	7,716.80	632,895.20
Transmission Link from recycled sb to sjMuni edenvale to SJ Muni servi	3,250.50	2,979.60	2,979.60	2,979.60	2,979.60	2,979.60	2,979.60	2,979.60	2,979.60	2,979.60	2,979.60	244,600.10

WEAP Output Baseline 2025

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	2003	Sum
Sum	25,650.60	25,650.60	25,650.60	25,650.60	25,650.60	25,650.60	25,650.60	25,650.60	25,650.60	25,650.60	25,650.60	2,103,351.10
Transmission Link Flow (Acre-foot)	Transmissio	Transmission I	Transmission	Transmission Li	Transmission L	Transmission	Transmission	Transmission L	Transmission I	Transmission L	Transmission L	Transmission L
Transmission Link from hh to PHills to Purisma Hills Service Area	1,842.00	1,842.00	1,842.00	1,842.00	1,842.00	1,481.00	1,481.00	1,281.00	1,481.00	1,842.00	1,842.00	147,756.00
Transmission Link from hh to Sunnyvale to Sunnyvale Service Area	10,158.00	10,158.00	10,158.00	10,158.00	10,158.00	10,945.00	10,945.00	9,458.00	10,945.00	10,158.00	10,158.00	836,278.00
Transmission Link from hh to milpitas service area to Milpitas Service	10,010.00	10,010.00	10,010.00	10,010.00	10,010.00	7,754.00	7,754.00	6,702.00	7,754.00	10,010.00	10,010.00	800,668.00
Transmission Link from hh to moffett ames to Stanford Moffett Field Am	3,445.00	3,445.00	3,445.00	3,445.00	3,445.00	2,539.00	2,539.00	2,193.00	2,539.00	3,445.00	3,445.00	274,550.00
Transmission Link from hh to mountain view to Mountain View Service Ar	12,806.80	12,774.70	12,774.70	12,774.70	12,774.70	10,594.90	10,594.90	9,150.40	10,596.00	12,774.70	12,774.70	1,026,663.10
Transmission Link from hh to palo alto to Palo Alto Service Area	13,518.40	13,697.90	13,697.90	13,697.90	13,697.90	12,359.90	12,359.90	10,709.00	11,856.20	13,697.90	13,697.90	1,107,145.30
Transmission Link from hh to santa clara to Santa Clara Service Area	5,119.00	5,119.00	5,119.00	5,119.00	5,119.00	1,942.00	1,942.00	1,679.00	1,942.00	5,119.00	5,119.00	393,816.00
Transmission Link from hh to sj muni n to SJ Muni North	5,119.00	5,119.00	5,119.00	5,119.00	5,119.00	3,283.00	3,283.00	2,838.00	3,283.00	5,119.00	5,119.00	404,180.00
Sum	62,018.20	62,165.60	62,165.60	62,165.60	62,165.60	50,898.80	50,898.80	44,010.40	50,396.10	62,165.60	62,165.60	4,991,056.40
Transmission Link Flow (Acre-foot)	Transmissio	Transmission I	Transmission	Transmission Li	Transmission L	Transmission	Transmission	Transmission L	Transmission I	Transmission L	Transmission L	Transmission L
Transmission Link from local stevens creek flood release to Tributary	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local uvas flood release to Tributary Inflow 5	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from release from anderson to cvp pl to Anderson PL	0	3,793.40	59,652.30	1,524.20	3,310.90	93.5	159.1	3,566.40	4,552.10	321.2	317	612,886.20
Transmission Link from release from calero to cvp pl to Calero PL rele	0	0	0	922.3	0	0	0	0	248.7	0	0	7,051.50
Transmission Link from release from pacheco to Tributary Inflow 6	0	0	0	0	0	0	0	0	0	0	0	0
Sum	0	3,793.40	59,652.30	2,446.50	3,310.90	93.5	159.1	3,566.40	4,800.80	321.2	317	619,937.70
Streamflow (below node or reach listed) (All Rivers) (Acre-foot)	Streamflow (	Streamflow (be	Streamflow (b	Streamflow (bel	Streamflow (bel	Streamflow (b	Streamflow (b	Streamflow (be	Streamflow (be	Streamflow (bel	Streamflow (bel	Streamflow (bel
SWP 1 Supply 0 \ Headflow	61,999.10	10,999.80	96,998.60	29,999.60	29,999.60	56,999.20	21,999.70	27,999.60	23,999.60	63,999.10	60,999.10	4,939,927.40
cvp 0 source supply 0 \ Headflow	121,128.40	69,175.90	152,497.80	94,555.50	64,999.00	100,323.60	64,999.00	75,023.60	81,706.60	108,114.60	111,198.50	8,991,576.10
Demand Site Inflows and Outflows (Demand Site: NC Coyote Pond Rechar	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site Ir	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR Coyote	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from Lower Coyote Creek	10,233.10	3,614.30	10,130.10	10,950.00	8,190.00	82.4	782	4,155.40	4,330.80	10,950.00	10,950.00	804,031.10
Inflow from cvp 3 santa clara conduit	579.3	465	0	0	0	19.2	0	0	679.9	0	0	3,357.70
Outflow to North County Santa Clara Sbb	-10,812.40	-4,079.30	-10,130.10	-10,950.00	-8,190.00	-101.6	-782	-4,155.40	-5,010.60	-10,950.00	-10,950.00	-807,388.90
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Ford Pond Recharge) (A	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site Ir	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR Coyote	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from Lower Coyote Creek	0	0	0	0	0	0	0	0	0	0	0	0
Outflow to North County Santa Clara Sbb	0	0	0	0	0	0	0	0	0	0	0	0
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Los Gatos Ponds) (Acre-	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site Ir	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR LG Ponds	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from Los Gatos Creek	1,797.10	3,805.40	0	9,212.60	3,806.80	4,295.00	3,376.30	4,338.80	8,470.00	3,564.40	1,956.00	490,023.40
Inflow from SWP 3 central pipeline	0	3,061.40	0	784.8	2,754.40	0	0	429.2	0	2,391.00	0	51,092.40
Inflow from cvp 7 central pl	20,179.70	3,358.60	0	988.9	2,745.60	4,901.90	0	2,717.30	2,311.00	2,651.50	0	143,978.20
Outflow to North County Santa Clara Sbb	-21,976.90	-10,225.50	0	-10,986.20	-9,306.90	-9,197.00	-3,376.30	-7,485.30	-10,781.00	-8,606.80	-1,956.00	-685,094.00
Sum	0	0	0	0	0	0	0	0	0	0	0	0

WEAP Output Baseline 2025

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	2003	Sum
Demand Site Inflows and Outflows (Demand Site: Almaden and Guadalupe	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site Ir	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from Guadalupe Creek	6,362.70	385.6	0	5,063.50	1,644.20	3,113.80	2,701.40	5,951.50	7,656.60	3,366.00	660	253,972.10
Inflow from IPR Guadalupe	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 4 almaden valley pipeline	0	2,076.70	0	865.9	1,525.50	270.8	0	0	0	0	0	10,219.40
Inflow from cvp 5 almaden valley pl	388.9	2,229.30	0	895.5	1,554.70	8.1	0	0	0	0	0	15,189.20
Outflow to North County Santa Clara Sbb	-6,751.60	-4,691.60	0	-6,824.90	-4,724.40	-3,392.70	-2,701.40	-5,951.50	-7,656.60	-3,366.00	-660	-279,380.70
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Kooser) (Acre-foot)	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site Ir	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR Guadalupe	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 4 almaden valley pipeline	0	453.2	0	539.2	388.8	104.9	0	0	0	244.8	48	12,408.10
Inflow from cvp 5 almaden valley pl	288	486.4	0	539.2	388.8	3.1	0	279.6	576	244.8	48	22,479.90
Outflow to North County Santa Clara Sbb	-288	-939.6	0	-1,078.40	-777.6	-108.1	0	-279.6	-576	-489.6	-96	-34,888.00
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Los Capitancillos Ponds)	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site Ir	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from Guadalupe Creek	2,141.90	23	2,701.40	1,338.30	597.9	1,132.30	982.3	1,432.80	1,914.50	2,047.40	2,775.40	185,988.80
Inflow from IPR Guadalupe	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 4 almaden valley pipeline	0	755.3	0	597.3	554.7	98.5	0	0	0	256.6	64.6	9,474.80
Inflow from cvp 5 almaden valley pl	159.5	810.7	0	653.3	565.3	2.9	0	0	0	325.3	80	14,085.10
Outflow to North County Santa Clara Sbb	-2,301.30	-1,589.00	-2,701.40	-2,588.90	-1,718.00	-1,233.70	-982.3	-1,432.80	-1,914.50	-2,629.30	-2,920.00	-209,548.70
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Overfelt Ponds) (Acre-foo	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site Ir	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR Penitencia	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from Penitencia Creek	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 2 SBA pipeline	624	1,341.60	1,460.00	1,460.00	972	305.4	0	325.7	518.1	1,460.00	1,460.00	105,410.20
Outflow to North County Santa Clara Sbb	-624	-1,341.60	-1,460.00	-1,460.00	-972	-305.4	0	-325.7	-518.1	-1,460.00	-1,460.00	-105,410.20
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Penitencia Ponds) (Acre-	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site Ir	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR Penitencia	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from Penitencia Creek	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 2 SBA pipeline	1,060.90	2,280.70	2,482.00	2,482.00	1,652.40	519.2	0	553.8	880.7	2,482.00	2,482.00	179,197.40
Outflow to North County Santa Clara Sbb	-1,060.90	-2,280.70	-2,482.00	-2,482.00	-1,652.40	-519.2	0	-553.8	-880.7	-2,482.00	-2,482.00	-179,197.40
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link Flow (Acre-foot)	Transmissio	Transmission I	Transmission	Transmission Li	Transmission L	Transmission	Transmission	Transmission L	Transmission I	Transmission L	Transmission L	Transmission L
Transmission Link from Uvas release to Llagas recharge to Church Pond	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from anderson release to butterfield to Butterfield	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from anderson release to madronne to Madrone Ponds	7,246.00	2,365.20	1,454.00	3,006.00	3,329.30	686.4	207.3	2,337.50	2,959.90	2,919.90	2,550.40	286,391.30
Transmission Link from lex pl 1 to Rinconanda WTP	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 10 to NC IWRP recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 2 to San Tomas Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 3 to Wildcat Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0

WEAP Output Baseline 2025

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	2003	Sum
Transmission Link from lex pl 4 to Saratoga Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 5 to Rodeo Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 6 to Calabazas Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 7 to Regnart Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 8 to Mcclellan Pond recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 9 to Stevens Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local 2 coyote pond recharge to Coyote Pond Rec	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local 2 guad creek to Guadalupe creek	5,610.80	340	7,081.00	5,008.30	1,449.90	2,745.80	2,382.20	5,248.20	6,751.80	7,081.00	7,081.00	527,334.40
Transmission Link from local 2 lower coyote recharge to lower coyote r	1,460.00	910.9	1,350.70	1,460.00	1,092.00	429.5	574.7	835.7	1,046.70	1,460.00	1,460.00	115,192.40
Transmission Link from local 2 overfelt to Overfelt Ponds	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local 2 pen ponds to Penitencia Ponds	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local 2 upper coyote to NC Upper Coyote Rechar	171.7	109.3	0	160.5	134.9	45.9	64.3	108.4	128.5	74.1	12	6,273.60
Transmission Link from local Chesbro release to recharge to Church Pon	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local Uvas release to recharge to Uvas Recharge	10,117.80	1,787.30	3,381.80	7,650.70	4,059.60	9,556.80	6,995.30	8,713.50	10,117.80	6,791.40	5,932.10	615,234.60
Transmission Link from local alamitos creek to Alamitos Creek recharge	1,106.50	101.7	2,026.00	947.9	447	849.2	736.8	1,151.40	1,482.20	1,452.00	2,160.70	144,004.90
Transmission Link from local anderson 2 coyote ponds to NC Coyote Pon	10,233.10	3,614.30	10,130.10	10,950.00	8,190.00	82.4	782	4,155.40	4,330.80	10,950.00	10,950.00	804,031.10
Transmission Link from local anderson release to main ave ponds to Mai	2,665.20	680.8	1,069.60	765	850	214.6	76.3	670.5	861.6	2,147.90	1,876.10	155,346.80
Transmission Link from local anderson res to Church Pond and Llagas Re	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local anderson res to Lower Llagas Recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local calabasas creek to Calabazas Creek Recha	1,149.00	236	1,336.40	141	353	200	50	374.4	1,015.20	1,869.00	1,869.00	71,683.30
Transmission Link from local calero creek to Calero Creek recharge	723	43	844.2	645.4	186.8	353.8	307	676.3	870.1	912.5	912.5	67,482.70
Transmission Link from local guadalupe 1 to Los Capitancillos Ponds	2,141.90	23	2,701.40	1,338.30	597.9	1,132.30	982.3	1,432.80	1,914.50	2,047.40	2,775.40	185,988.80
Transmission Link from local guadaupe 2 to Almaden and Guadalupe Por	6,362.70	385.6	0	5,063.50	1,644.20	3,113.80	2,701.40	5,951.50	7,656.60	3,366.00	660	253,972.10
Transmission Link from local lg creek diversion to Los Gatos Ck rechar	0	313.1	5,402.70	4,222.20	219.3	496	82	496	2,416.00	3,558.00	5,840.00	348,746.70
Transmission Link from local lg pond diversion to Los Gatos Ponds	1,797.10	3,805.40	0	9,212.60	3,806.80	4,295.00	3,376.30	4,338.80	8,470.00	3,564.40	1,956.00	490,023.40
Transmission Link from local lower Llagas recharge to Lower Llagas Rec	3,008.70	294.6	2,415.60	2,502.00	383	484.2	1,466.60	4,340.00	6,435.90	4,023.90	4,237.20	340,314.20
Transmission Link from local penitencia creek to Penitencia Creek Rech	1,335.80	164	0	485	334	484	227	410	747	267	5	33,223.00
Transmission Link from local regnart creek to Regnart Creek Recharge	276.7	14	341	15	20	4	1	73.3	189.4	451.7	451.7	16,802.20
Transmission Link from local release 2 ford ponds to Ford Pond Recharg	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local release 2 upper coyote to Coyote Upper Re	15,599.20	2,507.20	9,001.10	12,996.70	9,234.70	95.3	0	6,602.50	7,869.00	12,822.50	11,511.70	952,966.00
Transmission Link from local rodeo creek to Rodeo Creek Recharge	67.6	2	126	2	3	0	0	16	50	178.7	178.7	5,026.20
Transmission Link from local ross creek recharge to Ross Creek Recharg	863.8	290	1,113.20	487	421	364	364	517	633	888	888	57,301.30
Transmission Link from local san tomoa creek to San Tomas Creek Rech	691.4	188.5	740.4	299.1	271.5	170.3	233.9	311.8	388.5	771.9	771.9	48,384.60
Transmission Link from local saratoga div to NC IWRP recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local saratogo creek to Saratoga Creek Recharge	2,683.40	648	3,216.30	1,133.00	593	1,203.20	981	958.2	1,846.00	3,512.20	3,512.20	183,084.30
Transmission Link from local silver creek to Silver Creek Recharge	722.4	85	675.3	715	331	93	262	58	103	730	730	52,753.40
Transmission Link from local stevens creek to Stevens Creek Recharge	2,532.30	599.6	3,376.70	3,650.00	2,484.30	1,437.40	1,362.20	2,691.50	3,631.60	3,650.00	3,650.00	271,786.60
Transmission Link from local thompson creek to Thompson Creek Rechar	750.7	47	1,008.00	617	362	52	178	32	109	927	927	53,725.00
Transmission Link from local wildcat creek to Wildcat Creek Recharge	443.5	122.5	481.2	194.4	176.5	110.7	152.1	202.7	252.5	484.1	484.1	30,254.70
Sum	79,760.50	19,678.10	59,272.70	73,667.40	40,974.80	28,699.80	24,545.50	52,703.40	72,276.60	76,900.40	73,382.70	6,117,327.60
Demand Reduction Factor	0	0	0	0	0	0	0	0	-0.1	0	0	

WEAP Output Baseline 2030

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	2003	Sum
Groundwater Storage (Acre-foot)	Groundwate	Groundwater	Groundwater	Groundwater S	Groundwater S	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater S	Groundwater Storage (Acre-foot	
Coyote Subbasin	20,918.00	11,864.20	23,443.10	23,762.60	15,858.50	2,864.00	0	0	1,180.50	23,916.30	23,538.10	
LlagasSubbasin	73,020.40	119,409.00	142,945.30	134,619.30	126,979.00	121,341.80	115,431.90	116,981.60	121,479.00	142,639.20	140,228.10	
North County Santa Clara Sbb	292,645.20	291,210.70	341,675.30	314,658.70	269,622.30	235,511.10	156,379.90	98,689.40	83,873.80	332,561.40	330,219.80	
Sum	386,583.60	422,483.90	508,063.70	473,040.50	412,459.80	359,716.90	271,811.80	215,671.00	206,533.30	499,116.90	493,986.00	
Reservoir Storage Volume (Acre-foot)	Reservoir St	Reservoir Stor	Reservoir Stor	Reservoir Stora	Reservoir Stora	Reservoir Stor	Reservoir Sto	Reservoir Stor	Reservoir Stor	Reservoir Stora	Reservoir Storage Volume (Acre-	
Almaden Reservoir	200	200	200	200	200	200	200	200	200	677	200	
Anderson Reservoir	22,000.00	22,000.00	69,864.00	39,806.60	21,939.30	21,954.30	21,550.40	22,000.00	22,000.00	51,073.10	38,619.50	
Calero Reservoir	1,000.00	730	8,900.00	1,000.00	932.6	1,000.00	1,000.00	996.5	2,236.00	4,540.30	8,327.70	
Chesbro Reservoir	500	500	4,586.00	500	436.5	451.7	500	500	1,293.40	4,586.00	2,817.10	
Coyote Reservoir	1,000.00	1,000.00	5,200.00	5,200.00	997.2	993.7	910.4	1,000.00	1,000.00	5,200.00	5,200.00	
Guadalupe Reservoir	200	168.9	1,700.00	200	200	200	200	200	200	1,700.00	200	
Lexington Reservoir	2,621.40	4,264.70	16,000.00	7,482.70	4,962.60	3,790.90	2,967.80	5,301.70	7,835.60	16,000.00	13,183.30	
Pacheco Reservoir	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	
Stevens Creek Reservoir	31	181.5	2,368.00	583.6	31	31	31	31	1,609.50	2,368.00	2,368.00	
Uvas Reservoir	2,524.90	2,824.10	5,987.70	732.80	1,104.10	557.6	500	3,963.60	6,258.00	6,258.00	6,258.00	
cvp caryover	0	0	0	17,125.60	0	0	0	0	0	27,805.60	27,607.20	
cvp overflow not used	0	116,752.30	321,944.40	321,944.40	321,944.40	321,944.40	321,944.40	321,944.40	321,944.40	351,456.20	351,456.20	
semitropic reservoir	242,898.90	332,952.50	350,000.00	350,000.00	323,272.70	303,090.90	267,354.50	229,789.70	194,681.70	309,033.90	314,101.10	
swp caryyover	0	0	0	7,438.80	0	0	0	0	0	20,000.00	20,000.00	
swp overflow not used	0	46,611.00	193,413.70	193,413.70	193,413.70	193,413.70	193,413.70	193,413.70	193,413.70	197,526.60	197,526.60	
Sum	277,976.20	533,185.20	985,163.80	950,628.10	874,434.20	852,628.30	815,572.20	784,340.60	757,672.30	1,003,224.70	992,864.70	
Groundwater Natural Recharge (Acre-foot)	Groundwate	Groundwater	Groundwater	Groundwater N	Groundwater N	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater N	Groundwater N	Groundwater Na
Coyote Subbasin	2,535.00	1,326.90	5,335.00	1,838.80	1,544.90	1,101.90	1,457.80	2,541.20	3,273.60	2,141.80	1,990.30	183,393.10
LlagasSubbasin	18,129.30	21,464.50	32,000.40	21,397.30	20,951.50	19,716.10	21,162.80	21,993.90	19,018.50	23,642.90	22,257.30	1,802,330.50
North County Santa Clara Sbb	38,509.30	51,285.70	51,781.40	36,433.90	41,905.40	42,780.40	56,319.30	26,833.40	15,441.40	32,270.70	25,956.40	3,028,956.00
Sum	59,173.60	74,077.10	89,116.80	59,670.00	64,401.80	63,598.40	78,939.90	51,368.50	37,733.50	58,055.40	50,204.00	5,014,679.60
Transmission Link Flow (Acre-foot)	Transmissio	Transmission	Transmission	Transmission Li	Transmission Li	Transmission	Transmission	Transmission L	Transmission	Transmission Li	Transmission Li	Transmission Lin
Transmission Link from lake elsman to sjw west to SJ Water Company	12,613.80	1,362.00	14,943.80	3,997.90	3,455.90	6,503.90	3,720.90	6,431.90	3,455.90	7,405.90	15,947.80	815,457.00
Transmission Link from stanford water to Stanford Moffett Field Ames	823	64	692	187	160	303	174	296	160	681	976	51,733.20
Sum	13,436.80	1,426.00	15,635.80	4,184.90	3,615.90	6,806.90	3,894.90	6,727.90	3,615.90	8,086.90	16,923.80	867,190.30
Transmission Link Flow (Acre-foot)	Transmissio	Transmission	Transmission	Transmission Li	Transmission Li	Transmission	Transmission	Transmission L	Transmission	Transmission Li	Transmission Li	Transmission Lin
Transmission Link from deliver recycled to gilroy to Gilroy Service Ar	1,199.00	1,199.00	1,199.00	1,199.00	1,199.00	1,199.00	1,199.00	1,199.00	1,199.00	1,199.00	1,199.00	98,315.20
Transmission Link from recycle pa to palo alto to Palo Alto Service Ar	1,055.70	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	69,136.20
Transmission Link from recycle sv to sunnyvale to Sunnyvale Service Ar	1,900.00	1,900.00	1,900.00	1,900.00	1,900.00	1,900.00	1,900.00	1,900.00	1,900.00	1,900.00	1,900.00	155,797.70
Transmission Link from recycled 1 to Llagas Ag	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	98,399.90
Transmission Link from recycled SB to SJWC to SJ Water Company	3,174.30	3,338.40	3,338.40	3,338.40	3,338.40	2,950.50	2,950.50	2,968.90	3,596.80	3,338.40	3,338.40	273,112.10
Transmission Link from recycled SB to santa clara to Santa Clara Servi	4,539.80	4,539.80	4,539.80	4,539.80	4,539.80	4,539.80	4,539.80	4,539.80	4,539.80	4,539.80	4,539.80	372,263.60
Transmission Link from recycled pa to mountain view to Mountain View	994.2	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	98,961.30
Transmission Link from recycled sb to milpitas to Milpitas Service Are	2,042.90	2,042.90	2,042.90	2,042.90	2,042.90	2,042.90	2,042.90	2,042.90	2,042.90	2,042.90	2,042.90	167,518.60
Transmission Link from recycled sb to sj muni north to SJ Muni North	8,992.00	9,157.10	9,157.10	9,157.10	9,157.10	9,544.90	9,544.90	9,526.50	8,898.70	9,157.10	9,157.10	751,187.00
Transmission Link from recycled sb to sjMuni edenvale to SJ Muni servi	3,949.60	3,620.50	3,620.50	3,620.50	3,620.50	3,620.50	3,620.50	3,620.50	3,620.50	3,620.50	3,620.50	297,209.40
Sum	29,047.60	29,047.60	29,047.60	29,047.60	29,047.60	29,047.60	29,047.60	29,047.60	29,047.60	29,047.60	29,047.60	2,381,901.00

WEAP Output Baseline 2030

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	2003	Sum
Transmission Link Flow (Acre-foot)	Transmissioi	Transmission l	Transmission	Transmission Li	Transmission Li	Transmission	Transmission	Transmission L	Transmission l	Transmission Li	Transmission Li	Transmission Linl
Transmission Link from hh to PHills to Purisma Hills Service Area	1,842.00	1,842.00	1,842.00	1,842.00	1,842.00	1,481.00	1,481.00	1,281.00	1,481.00	1,842.00	1,842.00	147,756.00
Transmission Link from hh to Sunnyvale to Sunnyvale Service Area	10,158.00	10,158.00	10,158.00	10,158.00	10,158.00	10,945.00	10,945.00	9,458.00	10,945.00	10,158.00	10,158.00	836,278.00
Transmission Link from hh to milpitas service area to Milpitas Service	10,010.00	10,010.00	10,010.00	10,010.00	10,010.00	7,754.00	7,754.00	6,702.00	7,754.00	10,010.00	10,010.00	800,668.00
Transmission Link from hh to moffett ames to Stanford Moffett Field Am	3,445.00	3,445.00	3,445.00	3,445.00	3,445.00	2,539.00	2,539.00	2,193.00	2,539.00	3,445.00	3,445.00	274,550.00
Transmission Link from hh to mountain view to Mountain View Service A	12,840.00	12,828.10	12,828.10	12,828.10	12,828.10	10,594.90	10,594.90	9,150.40	10,595.20	12,828.10	12,828.10	1,030,699.20
Transmission Link from hh to palo alto to Palo Alto Service Area	14,170.60	14,320.50	14,320.50	14,320.50	14,320.50	12,395.00	12,395.00	10,709.00	11,835.00	14,320.50	14,320.50	1,152,857.30
Transmission Link from hh to santa clara to Santa Clara Service Area	5,119.00	5,119.00	5,119.00	5,119.00	5,119.00	1,942.00	1,942.00	1,679.00	1,942.00	5,119.00	5,119.00	393,816.00
Transmission Link from hh to sj muni n to SJ Muni North	5,119.00	5,119.00	5,119.00	5,119.00	5,119.00	3,283.00	3,283.00	2,838.00	3,283.00	5,119.00	5,119.00	404,180.00
Sum	62,703.60	62,841.60	62,841.60	62,841.60	62,841.60	50,933.90	50,933.90	44,010.40	50,374.30	62,841.60	62,841.60	5,040,804.50
Transmission Link Flow (Acre-foot)	Transmissioi	Transmission l	Transmission	Transmission Li	Transmission Li	Transmission	Transmission	Transmission L	Transmission l	Transmission Li	Transmission Li	Transmission Linl
Transmission Link from local stevens creek flood release to Tributary	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local uvas flood release to Tributary Inflow 5	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from release from anderson to cvp pl to Anderson PL	78.5	4,276.30	59,652.30	1,832.20	7,428.00	89.3	159.1	3,892.40	5,424.10	629.2	625	614,857.10
Transmission Link from release from calero to cvp pl to Calero PL rele	0	0	0	922.3	0	0	0	0	248.7	0	0	9,372.80
Transmission Link from release from pacheco to Tributary Inflow 6	0	0	0	0	0	0	0	0	0	0	0	0
Sum	78.5	4,276.30	59,652.30	2,754.50	7,428.00	89.3	159.1	3,892.40	5,672.80	629.2	625	624,229.90
Streamflow (below node or reach listed) (All Rivers) (Acre-foot)	Streamflow	Streamflow (b	Streamflow (b	Streamflow (be	Streamflow (be	Streamflow (b	Streamflow (b	Streamflow (be	Streamflow (b	Streamflow (be	Streamflow (be	Streamflow (belo
SWP 1 Supply 0 \ Headflow	61,999.10	10,999.80	96,998.60	29,999.60	29,999.60	56,999.20	21,999.70	27,999.60	23,999.60	63,999.10	60,999.10	4,939,927.40
cvp 0 source supply 0 \ Headflow	121,128.40	69,175.90	152,497.80	94,555.50	64,999.00	100,323.60	64,999.00	75,023.60	81,706.60	108,114.60	111,198.50	8,991,576.10
Demand Site Inflows and Outflows (Demand Site: NC Coyote Pond Rechar	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site Ir	Demand Site I	Demand Site In	Demand Site In	Demand Site Inflo
Inflow from IPR Coyote	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from Lower Coyote Creek	10,233.10	2,714.30	10,150.20	10,950.00	6,129.00	82.4	782	4,155.40	4,080.60	10,950.00	10,950.00	799,368.70
Inflow from cvp 3 santa clara conduit	579.3	450	0	0	0	200.6	0	0	930	0	0	4,340.70
Outflow to North County Santa Clara Sbb	-10,812.40	-3,164.30	-10,150.20	-10,950.00	-6,129.00	-283	-782	-4,155.40	-5,010.60	-10,950.00	-10,950.00	-803,709.30
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Ford Pond Recharge) (A	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site Ir	Demand Site I	Demand Site In	Demand Site In	Demand Site Inflo
Inflow from IPR Coyote	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from Lower Coyote Creek	0	0	0	0	0	0	0	0	0	0	0	0
Outflow to North County Santa Clara Sbb	0	0	0	0	0	0	0	0	0	0	0	0
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Los Gatos Ponds) (Acre-	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site Ir	Demand Site I	Demand Site In	Demand Site In	Demand Site Inflo
Inflow from IPR LG Ponds	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from Los Gatos Creek	1,797.10	3,724.90	0	9,063.20	3,737.70	4,244.00	3,363.70	4,325.90	8,449.30	3,987.80	4,042.40	580,707.90
Inflow from SWP 3 central pipeline	0	2,515.20	0	824.70	1,940.00	0.00	0	546.5	0	3,053.00	0	62,498.70
Inflow from cvp 7 central pl	20,486.70	2,705.70	0	988.90	1,630.00	4,466.70	0	1,988.20	1,514.10	3,303.50	0	161,510.20
Outflow to North County Santa Clara Sbb	-22,283.80	-8,945.80	0	-10,876.70	-7,307.70	-8,710.80	-3,363.70	-6,860.60	-9,963.40	-10,344.30	-4,042.40	-804,716.80
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Almaden and Guadalupe	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site Ir	Demand Site I	Demand Site In	Demand Site In	Demand Site Inflo
Inflow from Guadalupe Creek	6,362.70	385.6	0	4,935.40	1,644.20	3,113.80	2,701.40	5,951.50	7,656.60	4,026.00	1,364.00	299,573.10

WEAP Output Baseline 2030

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	2003	Sum
Inflow from IPR Guadalupe	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 4 almaden valley pipeline	0	1,555.20	0	865.9	623.5	0	0	0	0	0	0	9,199.50
Inflow from cvp 5 almaden valley pl	388.9	2,002.00	0	957.5	741.20	0	0	0	0	0	0	15,592.00
Outflow to North County Santa Clara Sbb	-6,751.60	-3,942.70	0	-6,758.90	-3,009.00	-3,113.80	-2,701.40	-5,951.50	-7,656.60	-4,026.00	-1,364.00	-324,364.70
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Kooser) (Acre-foot)	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site Ir	Demand Site I	Demand Site In	Demand Site In	Demand Site Inflo
Inflow from IPR Guadalupe	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 4 almaden valley pipeline	0	339.3	0	534.4	192	95.1	0	0	0	292.8	99.2	13,704.40
Inflow from cvp 5 almaden valley pl	292.8	436.8	0	534.4	214.6	32.1	0	148.8	456.2	292.8	99.2	26,558.30
Outflow to North County Santa Clara Sbb	-292.8	-776.1	0	-1,068.80	-406.6	-127.2	0	-148.8	-456.2	-585.6	-198.4	-40,262.70
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Los Capitancillos Ponds)	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site Ir	Demand Site I	Demand Site In	Demand Site In	Demand Site Inflo
Inflow from Guadalupe Creek	2,141.90	23	2,706.70	1,205.60	597.9	1,132.30	982.3	1,432.80	1,914.50	2,047.40	2,754.90	183,270.60
Inflow from IPR Guadalupe	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 4 almaden valley pipeline	0	565.5	0	597.3	226.7	0	0	0	0	256.6	0	9,225.90
Inflow from cvp 5 almaden valley pl	141.4	728	0	653.3	269.5	0	0	0	0	325.3	0	15,232.60
Outflow to North County Santa Clara Sbb	-2,283.30	-1,316.50	-2,706.70	-2,456.20	-1,094.20	-1,132.30	-982.3	-1,432.80	-1,914.50	-2,629.30	-2,754.90	-207,729.00
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Overfelt Ponds) (Acre-fc	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site Ir	Demand Site I	Demand Site In	Demand Site In	Demand Site Inflo
Inflow from IPR Penitencia	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from Penitencia Creek	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 2 SBA pipeline	595.5	1,092.00	1,460.00	1,460.00	717.8	373.1	0	282.6	480	1,460.00	1,460.00	102,176.40
Outflow to North County Santa Clara Sbb	-595.5	-1,092.00	-1,460.00	-1,460.00	-717.8	-373.1	0	-282.6	-480	-1,460.00	-1,460.00	-102,176.40
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Penitencia Ponds) (Acre	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site Ir	Demand Site I	Demand Site In	Demand Site In	Demand Site Inflo
Inflow from IPR Penitencia	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from Penitencia Creek	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 2 SBA pipeline	1,012.30	1,856.40	2,482.00	2,482.00	1,220.20	634.3	0	480.5	816	2,482.00	2,482.00	173,699.80
Outflow to North County Santa Clara Sbb	-1,012.30	-1,856.40	-2,482.00	-2,482.00	-1,220.20	-634.3	0	-480.5	-816	-2,482.00	-2,482.00	-173,699.80
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link Flow (Acre-foot)	Transmissio	Transmission l	Transmission	Transmission Li	Transmission Li	Transmission	Transmission	Transmission L	Transmission l	Transmission Li	Transmission Li	Transmission Link
Transmission Link from Uvas release to Llagas recharge to Church Pond	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from anderson release to butterfield to Butterfield	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from anderson release to madronne to Madrone Ponc	7,246.00	1,988.40	1,454.00	3,006.00	2,875.70	682.5	207.3	2,337.50	2,959.90	2,919.90	2,550.40	281,852.20
Transmission Link from lex pl 1 to Rinconanda WTP	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 10 to NC IWRP recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 2 to San Tomas Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 3 to Wildcat Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 4 to Saratoga Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 5 to Rodeo Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 6 to Calabazas Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0

WEAP Output Baseline 2030

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	2003	Sum
Transmission Link from lex pl 7 to Regnart Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 8 to Mcclellan Pond recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 9 to Stevens Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local 2 coyote pond recharge to Coyote Pond Re	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local 2 guad creek to Guadalupe creek	5,610.80	340	7,081.00	4,953.60	1,449.90	2,745.80	2,382.20	5,248.20	6,751.80	7,081.00	7,081.00	523,973.80
Transmission Link from local 2 lower coyote recharge to lower coyote r	1,460.00	620.8	1,353.40	1,460.00	1,073.10	429.5	574.7	835.7	1,043.30	1,460.00	1,460.00	115,061.70
Transmission Link from local 2 overfelt to Overfelt Ponds	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local 2 pen ponds to Penitencia Ponds	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local 2 upper coyote to NC Upper Coyote Rechar	171.7	70.4	0	159.3	132.2	45.9	64.3	108.4	128.2	86	24.8	7,321.10
Transmission Link from local Chesbro release to recharge to Church Pon	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local Uvas release to recharge to Uvas Recharge	10,117.80	1,787.30	3,381.80	7,650.70	4,059.60	9,556.80	6,995.30	8,713.50	10,117.80	6,791.40	5,932.10	616,066.20
Transmission Link from local alamitos creek to Alamitos Creek recharge	1,106.50	101.7	2,030.00	947.9	447	849.2	736.8	1,151.40	1,482.20	1,452.00	2,152.40	142,921.10
Transmission Link from local anderson 2 coyote ponds to NC Coyote Pon	10,233.10	2,714.30	10,150.20	10,950.00	6,129.00	82.4	782	4,155.40	4,080.60	10,950.00	10,950.00	799,368.70
Transmission Link from local anderson release to main ave ponds to Mai	2,665.20	580.1	1,069.60	765	792.9	213.2	76.3	670.5	861.6	2,147.90	1,876.10	154,353.50
Transmission Link from local anderson res to Church Pond and Llagas Re	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local anderson res to Lower Llagas Recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local calabasas creek to Calabazas Creek Rechar	1,149.00	236	1,331.20	141	353	200	50	374.4	1,015.20	1,869.00	1,869.00	71,857.20
Transmission Link from local calero creek to Calero Creek recharge	723	43	845.9	638.3	186.8	353.8	307	676.3	870.1	912.5	912.5	67,162.90
Transmission Link from local guadalupe 1 to Los Capitancillos Ponds	2,141.90	23	2,706.70	1,205.60	597.9	1,132.30	982.3	1,432.80	1,914.50	2,047.40	2,754.90	183,270.60
Transmission Link from local guadaupe 2 to Almaden and Guadalupe Po	6,362.70	385.6	0	4,935.40	1,644.20	3,113.80	2,701.40	5,951.50	7,656.60	4,026.00	1,364.00	299,573.10
Transmission Link from local lg creek diversion to Los Gatos Ck rechar	0	306.9	5,413.50	4,213.60	208.4	496	78.8	496	2,416.00	3,077.00	5,840.00	327,244.10
Transmission Link from local lg pond diversion to Los Gatos Ponds	1,797.10	3,724.90	0	9,063.20	3,737.70	4,244.00	3,363.70	4,325.90	8,449.30	3,987.80	4,042.40	580,707.90
Transmission Link from local lower Llagas recharge to Lower Llagas Rec	3,008.70	294.6	2,415.60	2,502.00	383	484.2	1,466.60	4,340.00	6,435.90	4,023.90	4,237.20	341,980.70
Transmission Link from local penitencia creek to Penitencia Creek Rech	1,335.80	164	0	579	334	484	227	410	747	447	13	38,843.50
Transmission Link from local regnart creek to Regnart Creek Recharge	276.7	14	337.7	15	20	4	1	73.3	189.4	451.7	451.7	16,872.60
Transmission Link from local release 2 ford ponds to Ford Pond Recharg	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local release 2 upper coyote to Coyote Upper Re	15,520.70	2,539.20	10,228.70	14,659.90	6,094.40	95.3	0	6,290.10	7,331.90	14,402.50	13,174.90	1,022,225.50
Transmission Link from local rodeo creek to Rodeo Creek Recharge	67.6	2	126	2	3	0	0	16	50	178.7	178.7	5,026.20
Transmission Link from local ross creek recharge to Ross Creek Recharg	863.8	290	1,109.00	487	421	364	364	517	633	888	888	57,466.00
Transmission Link from local san tomoa creek to San Tomas Creek Recha	691.4	188.5	742.4	299.1	271.5	170.3	233.9	311.8	388.5	771.9	771.9	48,491.00
Transmission Link from local saratoga div to NC IWRP recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local saratogo creek to Saratoga Creek Recharge	2,683.40	648	3,225.80	1,133.00	593	1,203.20	981	958.2	1,846.00	3,512.20	3,512.20	183,581.60
Transmission Link from local silver creek to Silver Creek Recharge	722.4	85	676.7	715	331	93	262	58	103	730	730	52,844.30
Transmission Link from local stevens creek to Stevens Creek Recharge	2,532.30	599.6	3,383.40	3,650.00	2,484.30	1,437.40	1,362.20	2,691.50	3,631.60	3,650.00	3,650.00	272,241.00
Transmission Link from local thompson creek to Thompson Creek Recha	750.7	47	1,010.00	617	362	52	178	32	109	927	927	53,833.40
Transmission Link from local wildcat creek to Wildcat Creek Recharge	443.5	122.5	482.6	194.4	176.5	110.7	152.1	202.7	252.5	484.1	484.1	30,323.90
Sum	79,682.00	17,916.60	60,555.10	74,943.00	35,161.20	28,643.50	24,529.80	52,378.20	71,464.90	79,274.80	77,828.30	6,294,463.70
Demand Reduction Factor	0	0	0	0	0	0	0	-0.05	-0.15	0	0	

WEAP Output Baseline 2035

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	2003	Sum
Groundwater Storage (Acre-foot)	Groundwate	Groundwater	Groundwater	Groundwater St	Groundwater S	Groundwater	Groundwater	Groundwater S	Groundwater	Groundwater S	Groundwater Storage (Acre-foo	
Coyote Subbasin	19,795.50	9,413.80	23,971.30	22,873.60	10,377.90	0.00	0	0	1,193.20	22,877.00	22,603.80	
LlagasSubbasin	72,872.80	117,465.60	142,711.50	133,935.10	125,746.30	119,893.00	112,949.70	115,020.20	123,275.40	142,428.80	139,941.70	
North County Santa Clara Sbb	282,325.00	215,194.50	337,809.10	306,885.20	238,643.50	203,161.30	113,708.80	64,203.70	92,853.70	329,233.30	328,794.10	
Sum	374,993.30	342,073.90	504,492.00	463,693.90	374,767.60	323,054.30	226,658.40	179,224.00	217,322.40	494,539.10	491,339.60	
Reservoir Storage Volume (Acre-foot)	Reservoir St	Reservoir Stor	Reservoir Sto	Reservoir Stora	Reservoir Stora	Reservoir Sto	Reservoir Sto	Reservoir Stor	Reservoir Stor	Reservoir Stora	Reservoir Storage Volume (Acr	
Almaden Reservoir	200	200	200	200	200	200	200	200	200	677	200	
Anderson Reservoir	22,000.00	21,873.10	69,864.00	36,144.20	21,939.30	21,954.30	21,550.40	22,000.00	22,000.00	49,882.60	35,859.00	
Calero Reservoir	1,000.00	730	8,900.00	1,000.00	932.6	1,000.00	1,000.00	996.5	2,236.00	4,457.50	7,318.20	
Chesbro Reservoir	500	500	4,586.00	500	436.5	451.7	500	500	1,293.40	4,586.00	2,817.10	
Coyote Reservoir	1,000.00	994.20	5,200.00	5,200.00	997.2	993.7	910.4	1,000.00	1,000.00	5,200.00	5,200.00	
Guadalupe Reservoir	200	168.9	1,700.00	200	200	200	200	200	200	1,700.00	200	
Lexington Reservoir	2,621.40	3,941.70	16,000.00	7,161.90	4,789.30	3,692.40	2,914.50	5,271.40	7,835.60	15,515.50	9,342.20	
Pacheco Reservoir	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	
Stevens Creek Reservoir	31	181.5	2,368.00	583.6	31	31	31	31	1,609.50	2,368.00	2,368.00	
Uvas Reservoir	2,524.90	2,824.10	5,987.70	732.80	1,104.10	557.6	500	3,963.60	6,258.00	6,258.00	6,258.00	
cvp caryover	0	0	0	0.00	0	0	0	0	0	9,495.40	6,703.50	
cvp overflow not used	0	34,494.40	180,783.70	180,783.70	180,783.70	180,783.70	180,783.70	180,783.70	180,783.70	195,365.70	195,365.70	
semitropic reservoir	242,532.10	192,255.50	258,832.90	256,010.20	217,585.30	187,803.40	152,067.60	114,502.80	79,135.50	168,969.70	171,741.90	
swp caryyover	0	0	0	0.00	0	0	0	0	0	6,779.00	4,614.30	
swp overflow not used	0	361.80	46,346.20	46,346.20	46,346.20	46,346.20	46,346.20	46,346.20	46,346.20	48,649.70	48,649.70	
Sum	277,609.40	263,525.40	605,768.50	539,862.60	480,345.20	449,014.00	412,003.90	380,795.20	353,897.90	524,904.10	501,637.70	
Groundwater Natural Recharge (Acre-foot)	Groundwate	Groundwater	Groundwater	Groundwater N	Groundwater N	Groundwater	Groundwater	Groundwater N	Groundwater	Groundwater N	Groundwater N	Groundwater N
Coyote Subbasin	2,535.00	1,326.90	5,335.00	1,838.80	1,544.90	1,101.90	1,457.80	2,541.20	3,273.60	2,141.80	1,990.30	183,393.10
LlagasSubbasin	18,129.30	21,464.50	32,000.40	21,397.30	20,951.50	19,716.10	21,162.80	21,993.90	19,018.50	23,642.90	22,257.30	1,802,330.50
North County Santa Clara Sbb	38,509.30	51,285.70	51,781.40	36,433.90	41,905.40	42,780.40	56,319.30	26,833.40	15,441.40	32,270.70	25,956.40	3,028,956.00
Sum	59,173.60	74,077.10	89,116.80	59,670.00	64,401.80	63,598.40	78,939.90	51,368.50	37,733.50	58,055.40	50,204.00	5,014,679.70
Transmission Link Flow (Acre-foot)	Transmissio	Transmission	Transmission	Transmission L	Transmission L	Transmission	Transmission	Transmission L	Transmission	Transmission L	Transmission L	Transmission L
Transmission Link from lake elsman to sjw west to SJ Water Company	12,613.80	1,362.00	14,943.80	3,997.90	3,455.90	6,503.90	3,720.90	6,431.90	3,455.90	7,405.90	15,947.80	815,457.00
Transmission Link from stanford water to Stanford Moffett Field Ames	823	64	692	187	160	303	174	296	160	681	976	51,733.20
Sum	13,436.80	1,426.00	15,635.80	4,184.90	3,615.90	6,806.90	3,894.90	6,727.90	3,615.90	8,086.90	16,923.80	867,190.30
Transmission Link Flow (Acre-foot)	Transmissio	Transmission	Transmission	Transmission L	Transmission L	Transmission	Transmission	Transmission L	Transmission	Transmission L	Transmission L	Transmission L
Transmission Link from deliver recycled to gilroy to Gilroy Service Ar	1,600.00	1,600.00	1,600.00	1,600.00	1,600.00	1,600.00	1,600.00	1,600.00	1,600.00	1,600.00	1,600.00	131,196.60
Transmission Link from recycle pa to palo alto to Palo Alto Service Ar	1,055.80	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	69,136.20
Transmission Link from recycle sv to sunnyvale to Sunnyvale Service Ar	1,900.00	1,900.00	1,900.00	1,900.00	1,900.00	1,900.00	1,900.00	1,900.00	1,900.00	1,900.00	1,900.00	155,797.70
Transmission Link from recycled 1 to Llagas Ag	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	98,400.00
Transmission Link from recycled SB to SJWC to SJ Water Company	3,060.90	3,110.90	3,110.90	3,110.90	3,110.90	3,041.70	3,041.70	3,041.80	4,680.10	3,110.90	3,110.90	259,215.50
Transmission Link from recycled SB to santa clara to Santa Clara Servi	4,680.00	4,680.00	4,680.00	4,680.00	4,680.00	4,680.00	4,680.00	4,680.00	4,680.00	4,680.00	4,680.00	383,760.00
Transmission Link from recycled pa to mountain view to Mountain View	994.2	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	98,961.30
Transmission Link from recycled sb to milpitas to Milpitas Service Are	2,106.00	2,106.00	2,106.00	2,106.00	2,106.00	2,106.00	2,106.00	2,106.00	2,106.00	2,106.00	2,106.00	172,692.00
Transmission Link from recycled sb to sj muni north to SJ Muni North	9,481.10	9,770.50	9,770.50	9,770.50	9,770.50	9,839.70	9,839.70	9,839.60	8,201.30	9,770.50	9,770.50	796,716.30
Transmission Link from recycled sb to sjMuni edenvale to SJ Muni servi	4,071.60	3,732.30	3,732.30	3,732.30	3,732.30	3,732.30	3,732.30	3,732.30	3,732.30	3,732.30	3,732.30	306,387.90
Sum	30,149.60	30,149.60	30,149.60	30,149.60	30,149.60	30,149.60	30,149.60	30,149.60	30,149.60	30,149.60	30,149.60	2,472,263.70

WEAP Output Baseline 2035

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	2003	Sum
Transmission Link Flow (Acre-foot)	Transmissio	Transmission I	Transmission	Transmission L	Transmission L	Transmission	Transmission	Transmission l	Transmission I	Transmission L	Transmission L	Transmission L
Transmission Link from hh to PHills to Purisma Hills Service Area	1,842.00	1,842.00	1,842.00	1,842.00	1,842.00	1,481.00	1,481.00	1,281.00	1,481.00	1,842.00	1,842.00	147,756.00
Transmission Link from hh to Sunnyvale to Sunnyvale Service Area	10,158.00	10,158.00	10,158.00	10,158.00	10,158.00	10,945.00	10,945.00	9,458.00	10,945.00	10,158.00	10,158.00	836,278.00
Transmission Link from hh to milpitas service area to Milpitas Service	10,010.00	10,010.00	10,010.00	10,010.00	10,010.00	7,754.00	7,754.00	6,702.00	7,754.00	10,010.00	10,010.00	800,668.00
Transmission Link from hh to moffett ames to Stanford Moffett Field Am	3,445.00	3,445.00	3,445.00	3,445.00	3,445.00	2,539.00	2,539.00	2,193.00	2,539.00	3,445.00	3,445.00	274,550.00
Transmission Link from hh to mountain view to Mountain View Service A	12,840.00	12,840.00	12,840.00	12,840.00	12,840.00	10,594.90	10,594.90	9,150.40	10,092.80	12,840.00	12,840.00	1,030,823.90
Transmission Link from hh to palo alto to Palo Alto Service Area	14,631.50	14,739.90	14,739.90	14,739.90	14,739.90	12,395.00	12,395.00	10,709.00	10,543.50	14,739.90	14,739.90	1,179,768.10
Transmission Link from hh to santa clara to Santa Clara Service Area	5,119.00	5,119.00	5,119.00	5,119.00	5,119.00	1,942.00	1,942.00	1,679.00	1,942.00	5,119.00	5,119.00	393,816.00
Transmission Link from hh to sj muni n to SJ Muni North	5,119.00	5,119.00	5,119.00	5,119.00	5,119.00	3,283.00	3,283.00	2,838.00	3,283.00	5,119.00	5,119.00	404,180.00
Sum	63,164.50	63,272.90	63,272.90	63,272.90	63,272.90	50,933.90	50,933.90	44,010.40	48,580.40	63,272.90	63,272.90	5,067,840.10
Transmission Link Flow (Acre-foot)	Transmissio	Transmission I	Transmission	Transmission L	Transmission L	Transmission	Transmission	Transmission l	Transmission I	Transmission L	Transmission L	Transmission L
Transmission Link from local stevens creek flood release to Tributary	0	0	0.00	0	0	0	0	0.00	0.00	0.00	0.00	0.00
Transmission Link from local uvas flood release to Tributary Inflow 5	0	0.00	0.00	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00
Transmission Link from release from anderson to cvp pl to Anderson PL	420.5	5,876.20	59,652.30	4,449.10	9,582.70	95.9	159.1	4,253.40	6,380.90	971.2	967.00	627,303.50
Transmission Link from release from calero to cvp pl to Calero PL rele	0	0.00	0	922.30	0.00	0.00	0.00	0.00	248.70	0.00	0.00	7,011.70
Transmission Link from release from pacheco to Tributary Inflow 6	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sum	420.5	5,876.20	59,652.30	5,371.40	9,582.70	95.9	159.1	4,253.40	6,629.50	971.2	967.00	634,315.20
Streamflow (below node or reach listed) (All Rivers) (Acre-foot)	Streamflow (	Streamflow (be	Streamflow (b	Streamflow (bel	Streamflow (be	Streamflow (b	Streamflow (b	Streamflow (be	Streamflow (be	Streamflow (be	Streamflow (be	Streamflow (be
SWP 1 Supply 0 \ Headflow	61,999.10	10,999.80	96,998.60	29,999.60	29,999.60	56,999.20	21,999.70	27,999.60	23,999.60	63,999.10	60,999.10	4,939,927.40
cvp 0 source supply 0 \ Headflow	121,128.40	69,175.90	152,497.80	94,555.50	64,999.00	100,323.60	64,999.00	75,023.60	81,706.60	108,114.60	111,198.50	8,991,576.10
Demand Site Inflows and Outflows (Demand Site: NC Coyote Pond Recha	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR Coyote	0.00	0.00	0.00	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00
Inflow from Lower Coyote Creek	10,233.10	1,770.00	10,777.80	10,950.00	4,521.90	79.9	782	4,016.30	4,038.30	10,950.00	10,950.00	795,183.10
Inflow from cvp 3 santa clara conduit	291.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	930.00	0.00	0.00	4,024.60
Outflow to North County Santa Clara Sbb	-10,524.80	-1,770.00	-10,777.80	-10,950.00	-4,521.90	-79.9	-782	-4,016.30	-4,968.30	-10,950.00	-10,950.00	-799,207.80
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Ford Pond Recharge) (A	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR Coyote	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from Lower Coyote Creek	0	0	0	0	0	0	0	0	0	0	0	0
Outflow to North County Santa Clara Sbb	0	0	0	0	0	0	0	0	0	0	0	0
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Los Gatos Ponds) (Acre	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR LG Ponds	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Inflow from Los Gatos Creek	1,797.10	3,487.20	0.00	8,330.60	3,635.00	4,169.30	3,338.70	4,306.10	8,419.00	5,572.60	7,954.40	744,065.90
Inflow from SWP 3 central pipeline	0.00	552.40	0	1,193.30	1,018.70	116.20	0.00	523.50	0.00	3,800.90	0.00	75,813.50
Inflow from cvp 7 central pl	18,592.70	641.10	0.00	1,325.70	641.10	6,289.40	0.00	1,369.10	839.80	4,569.30	0.00	216,642.80
Outflow to North County Santa Clara Sbb	-20,389.80	-4,680.70	0.00	-10,849.60	-5,294.90	-10,574.90	-3,338.70	-6,198.70	-9,258.80	-13,942.80	-7,954.40	-1,036,522.20
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Recycled Water												2,472,263.70
Demand Site Inflows and Outflows (Demand Site: Almaden and Guadalupe	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from Guadalupe Creek	6,362.70	385.6	0.00	4,935.40	1,644.20	3,113.80	2,701.40	5,951.50	7,656.60	5,034.60	2,684.00	385,566.00

WEAP Output Baseline 2035

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	2003	Sum
Inflow from IPR Guadalupe	0	0.00	0	0.00	0	0	0	0	0	0	0	0.00
Inflow from SWP 4 almaden valley pipeline	193.1	227.30	0	418.60	16.70	0	0	0	0	157.4	0	8,242.20
Inflow from cvp 5 almaden valley pl	195.80	227.30	0.00	695.40	313.30	0.00	0.00	0.00	0.00	220.00	0.00	12,561.50
Outflow to North County Santa Clara Sbb	-6,751.60	-840.20	0.00	-6,049.40	-1,974.20	-3,113.80	-2,701.40	-5,951.50	-7,656.60	-5,412.00	-2,684.00	-406,369.60
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Kooser) (Acre-foot)	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR Guadalupe	0	0	0	0	0	0	0	0	0	0	0	0.00
Inflow from SWP 4 almaden valley pipeline	71.5	49.6	0	436.8	58.1	57.5	0	0	0	393.6	195.2	14,762.80
Inflow from cvp 5 almaden valley pl	221.3	49.6	0.00	479.90	123.3	0	0	148.8	432	393.60	195.20	34,131.70
Outflow to North County Santa Clara Sbb	-292.8	-99.2	0	-916.70	-181.4	-57.5	0	-148.8	-432	-787.20	-390.4	-48,894.60
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Los Capitancillos Ponds	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from Guadalupe Creek	2,141.90	23	2,874.10	1,205.60	597.9	1,132.30	982.3	1,432.80	1,914.50	2,047.40	2,564.70	178,129.70
Inflow from IPR Guadalupe	0	0	0	0	0	0	0	0	0	0	0	0.00
Inflow from SWP 4 almaden valley pipeline	70.2	82.7	0	434.60	6.1	0	0	0	0	339.3	80	9,323.10
Inflow from cvp 5 almaden valley pl	71.20	82.7	0.00	558.00	113.9	0.00	0	0.00	0.00	408.00	80.00	16,346.80
Outflow to North County Santa Clara Sbb	-2,283.30	-188.30	-2,874.10	-2,198.20	-717.90	-1,132.30	-982.3	-1,432.80	-1,914.50	-2,794.70	-2,724.70	-203,799.70
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Overfelt Ponds) (Acre-fo	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR Penitencia	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from Penitencia Creek	0	0	0.00	0.00	0	0	0	0	0	0.00	0.00	0.00
Inflow from SWP 2 SBA pipeline	362	135.8	1,460.00	1,460.00	360.00	494.20	0	216	443.90	1,460.00	1,460.00	94,151.40
Outflow to North County Santa Clara Sbb	-362	-135.8	-1,460.00	-1,460.00	-360.00	-494.20	0	-216	-443.90	-1,460.00	-1,460.00	-94,151.40
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Penitencia Ponds) (Acre	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR Penitencia	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from Penitencia Creek	0	0.00	0.00	0.00	0	0.00	0	0	0	0.00	0.00	0.00
Inflow from SWP 2 SBA pipeline	615.40	230.80	2,482.00	2,482.00	612.00	840.20	0	367.20	754.70	2,482.00	2,482.00	160,057.40
Outflow to North County Santa Clara Sbb	-615.40	-230.80	-2,482.00	-2,482.00	-612.00	-840.20	0	-367.20	-754.70	-2,482.00	-2,482.00	-160,057.40
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link Flow (Acre-foot)	Transmissio	Transmission I	Transmission	Transmission L	Transmission L	Transmission	Transmission	Transmission L	Transmission I	Transmission L	Transmission L	Transmission L
Transmission Link from Uvas release to Llagas recharge to Church Ponc	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from anderson release to butterfield to Butterfield	0.00	0.00	0.00	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00
Transmission Link from anderson release to madronne to Madrone Pond	7,246.00	667.70	1,454.00	3,006.00	2,528.50	679.50	207.3	2,337.50	2,959.90	2,919.90	2,550.40	271,581.90
Transmission Link from lex pl 1 to Rinconanda WTP	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 10 to NC IWRP recharge	0	0	0	0	0	0	0	0	0	0	0	0.00
Transmission Link from lex pl 2 to San Tomas Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0.00
Transmission Link from lex pl 3 to Wildcat Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0.00
Transmission Link from lex pl 4 to Saratoga Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0.00
Transmission Link from lex pl 5 to Rodeo Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0.00
Transmission Link from lex pl 6 to Calabazas Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0.00

WEAP Output Baseline 2035

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	2003	Sum
Transmission Link from lex pl 7 to Regnart Creek Recharge	0	0	0.00	0	0	0	0	0	0	0	0	0.00
Transmission Link from lex pl 8 to Mcclellan Pond recharge	0	0	0	0	0	0	0	0	0	0	0	0.00
Transmission Link from lex pl 9 to Stevens Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local 2 coyote pond recharge to Coyote Pond Re	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transmission Link from local 2 guad creek to Guadalupe creek	5,610.80	340.00	7,081.00	4,953.60	1,449.90	2,745.80	2,382.20	5,248.20	6,751.80	6,748.20	7,081.00	516,259.60
Transmission Link from local 2 lower coyote recharge to lower coyote r	1,460.00	348.20	1,437.00	1,460.00	1,052.40	429.5	574.7	835.7	1,014.50	1,460.00	1,460.00	115,170.60
Transmission Link from local 2 overfelt to Overfelt Ponds	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local 2 pen ponds to Penitencia Ponds	0	0	0	0	0	0	0	0	0	0	0	0.00
Transmission Link from local 2 upper coyote to NC Upper Coyote Recha	171.7	35.4	0.00	159.30	129.3	45.9	64.3	108.40	125.30	116.30	56.80	9,298.30
Transmission Link from local Chesbro release to recharge to Church Por	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transmission Link from local Uvas release to recharge to Uvas Recharge	10,117.80	1,787.30	3,381.80	7,650.70	4,059.60	9,556.80	6,995.30	8,713.50	10,117.80	6,791.40	5,932.10	617,037.10
Transmission Link from local alamitos creek to Alamitos Creek recharge	1,106.50	101.70	2,155.60	947.90	447.00	849.2	736.8	1,151.40	1,482.20	1,349.10	2,067.20	140,172.30
Transmission Link from local anderson 2 coyote ponds to NC Coyote Po	10,233.10	1,770.00	10,777.80	10,950.00	4,521.90	79.9	782	4,016.30	4,038.30	10,950.00	10,950.00	795,183.10
Transmission Link from local anderson release to main ave ponds to Mai	2,665.20	170	1,069.60	765	740.9	212.1	76.3	670.5	861.6	2,147.90	1,876.10	149,825.10
Transmission Link from local anderson res to Church Pond and Llagas R	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local anderson res to Lower Llagas Recharge	0.00	0	0.00	0	0	0	0	0	0.00	0.00	0.00	0.00
Transmission Link from local calabasas creek to Calabazas Creek Recha	1,149.00	236	1,446.80	141	353	200	50	374.4	1,015.20	1,869.00	1,869.00	72,379.10
Transmission Link from local calero creek to Calero Creek recharge	723.00	43	898.10	638.30	186.8	353.80	307	676.30	870.10	869.60	912.50	66,396.10
Transmission Link from local guadalupe 1 to Los Capitancillos Ponds	2,141.90	23	2,874.10	1,205.60	597.90	1,132.30	982.30	1,432.80	1,914.50	2,047.40	2,564.70	178,129.70
Transmission Link from local guadaupe 2 to Almaden and Guadalupe Po	6,362.70	385.6	0.00	4,935.40	1,644.20	3,113.80	2,701.40	5,951.50	7,656.60	5,034.60	2,684.00	385,566.00
Transmission Link from local lg creek diversion to Los Gatos Ck rechar	0.00	289.90	5,748.10	3,700.70	192.30	496.00	74.20	496.00	2,416.00	2,329.20	5,840.00	284,677.50
Transmission Link from local lg pond diversion to Los Gatos Ponds	1,797.10	3,487.20	0.00	8,330.60	3,635.00	4,169.30	3,338.70	4,306.10	8,419.00	5,572.60	7,954.40	744,065.90
Transmission Link from local lower Llagas recharge to Lower Llagas Rec	3,008.70	294.6	2,415.60	2,502.00	383	484.2	1,466.60	4,340.00	6,435.90	4,023.90	4,237.20	339,738.70
Transmission Link from local penitencia creek to Penitencia Creek Rech	1,335.80	164	0	579	334	484	227	410	747	657.00	94.00	51,676.80
Transmission Link from local regnart creek to Regnart Creek Recharge	276.7	14	358.8	15	20	4	1	73.3	189.4	451.7	451.7	16,988.50
Transmission Link from local release 2 ford ponds to Ford Pond Recharg	0.00	0.00	0.00	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00
Transmission Link from local release 2 upper coyote to Coyote Upper Re	15,207.60	2,336.40	11,947.30	15,768.70	2,625.30	95.3	0	6,094.40	6,449.20	14,283.70	14,402.50	1,077,629.60
Transmission Link from local rodeo creek to Rodeo Creek Recharge	67.6	2	126.00	2	3	0	0	16	50	178.7	178.7	5,041.90
Transmission Link from local ross creek recharge to Ross Creek Recharg	863.8	290	1,202.70	487	421	364	364	517	633	888	888	57,895.80
Transmission Link from local san tomoa creek to San Tomas Creek Rech	691.4	188.5	805.1	299.1	271.5	170.3	233.9	311.8	388.5	771.9	771.9	48,796.40
Transmission Link from local saratoga div to NC IWRP recharge	0.00	0	0.00	0.00	0	0.00	0	0	0.00	0.00	0.00	0.00
Transmission Link from local saratogo creek to Saratoga Creek Recharg	2,683.40	648	3,522.90	1,133.00	593	1,203.20	981	958.2	1,846.00	3,512.20	3,512.20	185,026.90
Transmission Link from local silver creek to Silver Creek Recharge	722.40	85	718.50	715.00	331.00	93.00	262.00	58.00	103.00	730.00	730.00	53,059.80
Transmission Link from local stevens creek to Stevens Creek Recharge	2,532.30	599.6	3,592.60	3,650.00	2,484.30	1,437.40	1,362.20	2,691.50	3,631.60	3,650.00	3,650.00	273,318.40
Transmission Link from local thompson creek to Thompson Creek Recha	750.7	47	1,072.80	617	362	52	178	32	109	927	927	54,138.70
Transmission Link from local wildcat creek to Wildcat Creek Recharge	443.50	122.50	523.30	194.40	176.50	110.70	152.10	202.70	252.50	484.10	484.10	30,522.30
Sum	79,368.80	14,476.50	64,609.40	74,806.30	29,543.30	28,562.20	24,500.10	52,023.50	70,477.90	80,763.40	84,125.40	6,539,576.20
Demand Reduction Factor	0	0	0	0	0	0	0	-0.1	-0.3	0	0	
Total Water Supply without GW Reserves	428,841.30	269,454.00	571,933.20	362,010.20	295,564.80	337,469.70	275,576.20	291,556.50	302,893.00	413,413.10	417,840.30	34,527,368.70
Demand	422920	422920	422920	422920	422920	422920	422920	380628	296044	422920	422920	
Reserves	0	153466	0	60909.8	127355.2	85450.3	147343.8	89071.5	0	9506.9	5079.7	

WEAP Output Develop Local 2035

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	2003	Sum
Groundwater Storage (Acre-foot)	Groundwate	Groundwater S	Groundwater	Groundwater St	Groundwater S	Groundwater	Groundwater	Groundwater S	Groundwater S	Groundwater S	Groundwater Storage (Acre-foo	
Coyote Subbasin	19,795.50	10,901.90	23,974.50	22,876.80	15,365.50	899.1	0	0	1,182.20	22,865.90	22,592.80	
LlagasSubbasin	72,872.80	118,932.40	142,036.90	133,538.70	126,339.50	121,018.00	115,171.10	116,418.70	118,615.90	142,377.10	139,890.00	
North County Santa Clara Sbb	282,325.00	301,032.90	340,164.00	318,198.60	288,179.70	272,021.90	201,885.80	135,136.00	95,203.00	330,354.00	325,239.90	
Sum	374,993.30	430,867.20	506,175.40	474,614.20	429,884.70	393,939.00	317,056.90	251,554.70	215,001.10	495,597.00	487,722.70	
Reservoir Storage Volume (Acre-foot)	Reservoir St	Reservoir Stor	Reservoir Sto	Reservoir Stora	Reservoir Stora	Reservoir Stor	Reservoir Sto	Reservoir Stora	Reservoir Stor	Reservoir Stora	Reservoir Storage Volume (Acr	
Almaden Reservoir	200	200	200	200	200	200	200	200	200	677	200	
Anderson Reservoir	22,000.00	22,000.00	69,864.00	38,783.10	21,939.30	21,954.30	21,550.40	22,000.00	22,000.00	49,910.00	35,893.20	
Calero Reservoir	1,000.00	730	8,900.00	1,000.00	932.6	1,000.00	1,000.00	996.5	2,236.00	4,521.80	8,000.20	
Chesbro Reservoir	500	500	4,586.00	500	436.5	451.7	500	500	1,293.40	4,586.00	2,817.10	
Coyote Reservoir	1,000.00	1,000.00	5,200.00	5,200.00	997.2	993.7	910.4	1,000.00	1,000.00	5,200.00	5,200.00	
Guadalupe Reservoir	200	168.9	1,700.00	200	200	200	200	200	200	1,700.00	200	
Lexington Reservoir	2,621.40	3,077.30	9,512.30	4,641.50	3,427.30	2,771.30	2,416.80	3,355.40	4,820.50	8,912.40	5,735.20	
Pacheco Reservoir	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	
Stevens Creek Reservoir	31	181.5	2,368.00	583.6	31	31	31	31	1,609.50	2,368.00	2,368.00	
Uvas Reservoir	2,524.90	2,824.10	5,987.70	1,027.70	1,104.10	557.6	500	3,963.60	6,258.00	6,258.00	6,258.00	
cvp caryover	0	0	0	27,864.10	0	0	0	0	0	39,823.90	38,136.30	
cvp overflow not used	0	397,157.00	664,848.40	664,848.40	664,848.40	664,848.40	664,848.40	664,848.40	664,848.40	767,135.90	767,135.90	
semitropic reservoir	242,532.10	332,721.00	350,000.00	350,000.00	329,927.30	301,018.50	265,282.00	229,039.30	195,760.90	338,765.90	348,718.50	
swp caryyover	0	0	0	12,296.30	0	0	0	0	0	20,000.00	20,000.00	
swp overflow not used	0	172,133.10	336,731.00	336,731.00	336,731.00	336,731.00	336,731.00	336,731.00	336,731.00	341,527.60	341,527.60	
Sum	277,609.40	937,693.00	1,464,897.40	1,448,875.60	1,365,774.80	1,335,757.50	1,299,170.10	1,267,865.30	1,241,957.70	1,596,386.40	1,587,189.80	
Groundwater Natural Recharge (Acre-foot)	Groundwate	Groundwater N	Groundwater	Groundwater N	Groundwater N	Groundwater	Groundwater	Groundwater N	Groundwater N	Groundwater N	Groundwater N	Groundwater N
Coyote Subbasin	2,535.00	1,326.90	5,335.00	1,838.80	1,544.90	1,101.90	1,457.80	2,541.20	3,273.60	2,141.80	1,990.30	183,393.10
LlagasSubbasin	18,129.30	21,464.50	32,000.40	21,397.30	20,951.50	19,716.10	21,162.80	21,993.90	19,018.50	23,642.90	22,257.30	1,802,330.50
North County Santa Clara Sbb	38,509.30	51,285.70	51,781.40	36,433.90	41,905.40	42,780.40	56,319.30	26,833.40	15,441.40	32,270.70	25,956.40	3,028,956.00
Sum	59,173.60	74,077.10	89,116.80	59,670.00	64,401.80	63,598.40	78,939.80	51,368.50	37,733.50	58,055.40	50,204.00	5,014,679.70
Transmission Link Flow (Acre-foot)	Transmissio	Transmission L	Transmission	Transmission Li	Transmission L	Transmission	Transmission	Transmission L	Transmission L	Transmission L	Transmission L	Transmission L
Transmission Link from lake elsman to sjw west to SJ Water Company	12,613.80	1,362.00	14,943.80	3,997.90	3,455.90	6,503.90	3,720.90	6,431.90	3,455.90	7,405.90	15,947.80	815,457.00
Transmission Link from stanford water to Stanford Moffett Field Ames	823	64	692	187	160	303	174	296	160	681	976	51,733.20
Sum	13,436.80	1,426.00	15,635.80	4,184.90	3,615.90	6,806.90	3,894.90	6,727.90	3,615.90	8,086.90	16,923.80	867,190.30
Transmission Link Flow (Acre-foot)	Transmissio	Transmission L	Transmission	Transmission Li	Transmission L	Transmission	Transmission	Transmission L	Transmission L	Transmission L	Transmission L	Transmission L
Transmission Link from deliver recycled to gilroy to Gilroy Service Ar	1,600.00	1,600.00	1,600.00	1,600.00	1,600.00	1,600.00	1,600.00	1,600.00	1,600.00	1,600.00	1,600.00	131,196.60
Transmission Link from recycle pa to palo alto to Palo Alto Service Ar	1,055.80	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	69,136.20
Transmission Link from recycle sv to sunnyvale to Sunnyvale Service Ar	1,900.00	2,400.00	2,400.00	2,400.00	2,400.00	2,400.00	2,400.00	2,400.00	2,400.00	2,400.00	2,400.00	196,297.10
Transmission Link from recycled 1 to Llagas Ag	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	98,400.00
Transmission Link from recycled SB to SJWC to SJ Water Company	3,060.90	3,110.90	3,110.90	3,110.90	3,110.90	3,041.70	3,041.70	3,041.70	3,041.70	3,110.90	3,110.90	255,230.70
Transmission Link from recycled SB to santa clara to Santa Clara Servi	4,680.00	4,680.00	4,680.00	4,680.00	4,680.00	4,680.00	4,680.00	4,680.00	4,680.00	4,680.00	4,680.00	383,760.00
Transmission Link from recycled pa to mountain view to Mountain View S	994.2	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	98,961.30
Transmission Link from recycled sb to milpitas to Milpitas Service Are	2,106.00	2,106.00	2,106.00	2,106.00	2,106.00	2,106.00	2,106.00	2,106.00	2,106.00	2,106.00	2,106.00	172,692.00
Transmission Link from recycled sb to sj muni north to SJ Muni North	9,481.10	9,770.50	9,770.50	9,770.50	9,770.50	9,839.70	9,839.70	9,839.70	9,839.70	9,770.50	9,770.50	800,701.20
Transmission Link from recycled sb to sjMuni edenvale to SJ Muni servi	4,071.60	3,732.30	3,732.30	3,732.30	3,732.30	3,732.30	3,732.30	3,732.30	3,732.30	3,732.30	3,732.30	306,387.90

WEAP Output Develop Local 2035

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	2003	Sum
Sum	30,149.60	30,649.50	30,649.50	30,649.50	30,649.50	30,649.50	30,649.50	30,649.50	30,649.50	30,649.50	30,649.50	2,512,763.10
Transmission Link Flow (Acre-foot)	Transmissio	Transmission	Transmission	Transmission Li	Transmission L	Transmission	Transmission	Transmission L	Transmission	Transmission L	Transmission L	Transmission L
Transmission Link from hh to PHills to Purisma Hills Service Area	1,842.00	1,842.00	1,842.00	1,842.00	1,842.00	1,481.00	1,481.00	1,281.00	1,481.00	1,842.00	1,842.00	147,756.00
Transmission Link from hh to Sunnyvale to Sunnyvale Service Area	10,158.00	10,158.00	10,158.00	10,158.00	10,158.00	10,945.00	10,945.00	9,458.00	10,945.00	10,158.00	10,158.00	836,278.00
Transmission Link from hh to milpitas service area to Milpitas Service	10,010.00	10,010.00	10,010.00	10,010.00	10,010.00	7,754.00	7,754.00	6,702.00	7,754.00	10,010.00	10,010.00	800,668.00
Transmission Link from hh to moffett ames to Stanford Moffett Field Am	3,445.00	3,445.00	3,445.00	3,445.00	3,445.00	2,539.00	2,539.00	2,193.00	2,539.00	3,445.00	3,445.00	274,550.00
Transmission Link from hh to mountain view to Mountain View Service Ar	12,840.00	12,840.00	12,840.00	12,840.00	12,840.00	10,594.90	10,594.90	9,150.40	10,594.90	12,840.00	12,840.00	1,031,905.10
Transmission Link from hh to palo alto to Palo Alto Service Area	14,631.50	14,739.90	14,739.90	14,739.90	14,739.90	12,395.00	12,395.00	10,709.00	12,395.00	14,739.90	14,739.90	1,185,379.70
Transmission Link from hh to santa clara to Santa Clara Service Area	5,119.00	5,119.00	5,119.00	5,119.00	5,119.00	1,942.00	1,942.00	1,679.00	1,942.00	5,119.00	5,119.00	393,816.00
Transmission Link from hh to sj muni n to SJ Muni North	5,119.00	5,119.00	5,119.00	5,119.00	5,119.00	3,283.00	3,283.00	2,838.00	3,283.00	5,119.00	5,119.00	404,180.00
Sum	63,164.50	63,272.90	63,272.90	63,272.90	63,272.90	50,933.90	50,933.90	44,010.40	50,933.90	63,272.90	63,272.90	5,074,532.80
Transmission Link Flow (Acre-foot)	Transmissio	Transmission	Transmission	Transmission Li	Transmission L	Transmission	Transmission	Transmission L	Transmission	Transmission L	Transmission L	Transmission L
Transmission Link from local stevens creek flood release to Tributary	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local uvas flood release to Tributary Inflow 5	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from release from anderson to cvp pl to Anderson PL	420.5	4,611.70	59,652.30	2,174.20	3,953.70	95.9	159.1	3,022.60	4,222.60	971.2	967	597,895.20
Transmission Link from release from calero to cvp pl to Calero PL rele	0	0	0	922.3	0	0	0	0	248.7	0	0	7,618.80
Transmission Link from release from pacheco to Tributary Inflow 6	0	0	0	0	0	0	0	0	0	0	0	0
Sum	420.5	4,611.70	59,652.30	3,096.50	3,953.70	95.9	159.1	3,022.60	4,471.30	971.2	967	605,514.00
Streamflow (below node or reach listed) (All Rivers) (Acre-foot)	Streamflow (	Streamflow (be	Streamflow (b	Streamflow (bel	Streamflow (bel	Streamflow (b	Streamflow (b	Streamflow (be	Streamflow (be	Streamflow (bel	Streamflow (bel	Streamflow (bel
SWP 1 Supply 0 \ Headflow	61,999.10	10,999.80	96,998.60	29,999.60	29,999.60	56,999.20	21,999.70	27,999.60	23,999.60	63,999.10	60,999.10	4,939,927.40
cvp 0 source supply 0 \ Headflow	121,128.40	69,175.90	152,497.80	94,555.50	64,999.00	100,323.60	64,999.00	75,023.60	81,706.60	108,114.60	111,198.50	8,991,576.10
Demand Site Inflows and Outflows (Demand Site: NC Coyote Pond Rechar	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR Coyote	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from Lower Coyote Creek	10,233.10	2,287.60	10,547.60	10,950.00	6,845.60	79.9	782	4,155.40	4,427.00	10,950.00	10,950.00	796,921.30
Inflow from cvp 3 santa clara conduit	291.7	862.4	0	0	0	0	0	0	930	0	0	5,921.70
Outflow to North County Santa Clara Sbb	-10,524.80	-3,150.00	-10,547.60	-10,950.00	-6,845.60	-79.9	-782	-4,155.40	-5,357.00	-10,950.00	-10,950.00	-802,843.00
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Ford Pond Recharge) (A	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR Coyote	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from Lower Coyote Creek	0	0	0	0	0	0	0	0	0	0	0	0
Outflow to North County Santa Clara Sbb	0	0	0	0	0	0	0	0	0	0	0	0
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Los Gatos Ponds) (Acre-	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR LG Ponds	0	18,301.10	0	16,602.50	19,999.70	19,999.70	19,999.70	19,999.70	19,999.70	10,082.00	4,986.20	882,398.00
Inflow from Los Gatos Creek	1,797.10	0	0	122.8	0	0	0	322.6	291.4	0	0	19,568.40
Inflow from SWP 3 central pipeline	0	322.6	0	0	322.6	0	291.4	291.4	322.6	0	0	3,517.50
Inflow from cvp 7 central pl	18,592.70	2,518.30	0	3,030.30	1,883.50	3,289.40	0	1,027.40	1,592.20	1,914.80	947	145,012.90
Outflow to North County Santa Clara Sbb	-20,389.80	-21,142.00	0	-19,755.60	-22,205.80	-23,289.10	-20,291.10	-21,641.10	-22,205.80	-11,996.80	-5,933.20	-1,050,496.70
Sum	0	0	0	0	0	0	0	0	0	0	0	0

WEAP Output Develop Local 2035

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	2003	Sum
Demand Site Inflows and Outflows (Demand Site: Almaden and Guadalupe	Demand Site	Demand Site I	Demand Site (	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site Ir	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from Guadalupe Creek	6,362.70	310.2	0	4,557.40	1,644.20	3,113.80	2,701.40	5,951.50	7,656.60	4,048.00	2,002.00	300,837.20
Inflow from IPR Guadalupe	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 4 almaden valley pipeline	193.1	1,327.30	0	834.5	1,070.90	0	0	0	0	0	0	9,345.50
Inflow from cvp 5 almaden valley pl	195.8	1,554.70	0	894.7	1,100.00	0	0	0	0	0	0	15,206.50
Outflow to North County Santa Clara Sbb	-6,751.60	-3,192.20	0	-6,286.50	-3,815.10	-3,113.80	-2,701.40	-5,951.50	-7,656.60	-4,048.00	-2,002.00	-325,389.20
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Kooser) (Acre-foot)	Demand Site	Demand Site I	Demand Site (	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site Ir	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR Guadalupe	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 4 almaden valley pipeline	71.5	289.6	0	484.8	289.6	148.8	0	0	0	294.4	145.6	15,758.70
Inflow from cvp 5 almaden valley pl	221.3	339.2	0	484.8	289.6	0	0	292.8	576	294.4	145.6	27,652.60
Outflow to North County Santa Clara Sbb	-292.8	-628.8	0	-969.6	-579.2	-148.8	0	-292.8	-576	-588.8	-291.2	-43,411.30
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Los Capitancillos Ponds)	Demand Site	Demand Site I	Demand Site (	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site Ir	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from Guadalupe Creek	2,141.90	23	2,812.70	1,216.50	597.9	1,132.30	982.3	1,432.80	1,914.50	2,047.40	2,564.70	183,156.10
Inflow from IPR Guadalupe	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 4 almaden valley pipeline	70.2	482.7	0	595.9	389.4	0	0	0	0	259.3	80	10,684.70
Inflow from cvp 5 almaden valley pl	71.2	565.3	0	653.3	400	0	0	0	0	328	80	16,008.00
Outflow to North County Santa Clara Sbb	-2,283.30	-1,071.00	-2,812.70	-2,465.70	-1,387.30	-1,132.30	-982.3	-1,432.80	-1,914.50	-2,634.70	-2,724.70	-209,848.80
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Overfelt Ponds) (Acre-foc	Demand Site	Demand Site I	Demand Site (	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site Ir	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR Penitencia	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from Penitencia Creek	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 2 SBA pipeline	362	988.00	1,460.00	1,460.00	724	671.6	0	306.2	480.9	1,460.00	1,460.00	105,710.90
Outflow to North County Santa Clara Sbb	-362	-988.00	-1,460.00	-1,460.00	-724	-671.6	0	-306.2	-480.9	-1,460.00	-1,460.00	-105,710.90
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Penitencia Ponds) (Acre-	Demand Site	Demand Site I	Demand Site (	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site Ir	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR Penitencia	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from Penitencia Creek	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 2 SBA pipeline	615.4	1,679.50	2,482.00	2,482.00	1,230.80	1,141.60	0	520.5	817.5	2,482.00	2,482.00	179,708.60
Outflow to North County Santa Clara Sbb	-615.4	-1,679.50	-2,482.00	-2,482.00	-1,230.80	-1,141.60	0	-520.5	-817.5	-2,482.00	-2,482.00	-179,708.60
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link Flow (Acre-foot)	Transmissio	Transmission I	Transmission	Transmission Li	Transmission L	Transmission	Transmission	Transmission L	Transmission I	Transmission L	Transmission L	Transmission L
Transmission Link from Uvas release to Llagas recharge to Church Pond	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from anderson release to butterfield to Butterfield	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from anderson release to madronne to Madrone Ponds	7,246.00	1,375.60	1,454.00	2,672.00	3,065.80	679.5	207.3	2,337.50	2,959.90	2,919.90	2,550.40	282,774.30
Transmission Link from lex pl 1 to Rinconanda WTP	0	3,139.40	41,494.20	10,101.70	2,775.50	4,404.70	3,025.50	5,332.10	11,243.40	11,125.60	13,947.90	1,374,409.10
Transmission Link from lex pl 10 to NC IWRP recharge	0	0	136.4	0	0	0	0	0	0	249.3	0	7,304.20
Transmission Link from lex pl 2 to San Tomas Creek Recharge	0	0	40.2	0	0	0	0	0	0	54.2	0	1,412.20
Transmission Link from lex pl 3 to Wildcat Creek Recharge	0	0	26.2	0	0	0	0	0	0	35.2	0	1,006.10

WEAP Output Develop Local 2035

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	2003	Sum
Transmission Link from lex pl 4 to Saratoga Creek Recharge	0	0	384.1	0	0	0	0	0	0	353.9	0	11,628.80
Transmission Link from lex pl 5 to Rodeo Creek Recharge	0	0	459.9	0	0	0	0	68.9	47.7	80.9	0	11,615.60
Transmission Link from lex pl 6 to Calabazas Creek Recharge	0	0	421.9	0	0	0	0	0	0	106.4	0	10,010.60
Transmission Link from lex pl 7 to Regnart Creek Recharge	0	0	156.1	0	0	0	0	0	0	49.3	0	4,011.10
Transmission Link from lex pl 8 to Mcclellan Pond recharge	0	0	1,017.60	0	0	0	0	148.8	134.4	148.8	0	26,960.10
Transmission Link from lex pl 9 to Stevens Creek Recharge	0	0	134.1	0	0	0	0	0	0	0	0	1,011.10
Transmission Link from local 2 coyote pond recharge to Coyote Pond Re	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local 2 guad creek to Guadalupe creek	5,610.80	392.6	7,081.00	5,221.60	1,449.90	2,745.80	2,382.20	5,248.20	6,751.80	7,081.00	7,081.00	524,786.60
Transmission Link from local 2 lower coyote recharge to lower coyote r	1,460.00	438.3	1,406.30	1,460.00	1,092.00	429.5	574.7	835.7	1,014.50	1,460.00	1,460.00	114,918.90
Transmission Link from local 2 overfelt to Overfelt Ponds	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local 2 pen ponds to Penitencia Ponds	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local 2 upper coyote to NC Upper Coyote Rechar	171.7	33.4	0	146.9	134.9	45.9	64.3	108.4	125.3	88.3	44.4	7,262.60
Transmission Link from local Chesbro release to recharge to Church Pon	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local Uvas release to recharge to Uvas Recharge	10,117.80	1,787.30	3,381.80	6,791.40	4,354.50	9,556.80	6,995.30	8,713.50	10,117.80	6,791.40	5,932.10	620,603.00
Transmission Link from local alamitos creek to Alamitos Creek recharge	1,106.50	118	2,109.50	949.7	447	849.2	736.8	1,151.40	1,482.20	1,452.00	2,067.20	143,160.00
Transmission Link from local anderson 2 coyote ponds to NC Coyote Pon	10,233.10	2,287.60	10,547.60	10,950.00	6,845.60	79.9	782	4,155.40	4,427.00	10,950.00	10,950.00	796,921.30
Transmission Link from local anderson release to main ave ponds to Mai	2,665.20	392.5	1,069.60	680	825	212.1	76.3	670.5	861.6	2,147.90	1,876.10	154,701.60
Transmission Link from local anderson res to Church Pond and Llagas Re	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local anderson res to Lower Llagas Recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local calabasas creek to Calabazas Creek Recha	1,149.00	236	1,426.90	141	353	200	50	374.4	1,015.20	1,869.00	1,869.00	72,010.80
Transmission Link from local calero creek to Calero Creek recharge	723	49.4	879	672.9	186.8	353.8	307	676.3	870.1	912.5	912.5	67,256.20
Transmission Link from local guadalupe 1 to Los Capitancillos Ponds	2,141.90	23	2,812.70	1,216.50	597.9	1,132.30	982.3	1,432.80	1,914.50	2,047.40	2,564.70	183,156.10
Transmission Link from local guadaupe 2 to Almaden and Guadalupe Po	6,362.70	310.2	0	4,557.40	1,644.20	3,113.80	2,701.40	5,951.50	7,656.60	4,048.00	2,002.00	300,837.20
Transmission Link from local lg creek diversion to Los Gatos Ck rechar	0	0	3,177.40	0	0	0	0	496	448	496	0	88,249.20
Transmission Link from local lg pond diversion to Los Gatos Ponds	1,797.10	0	0	122.8	0	0	0	322.6	291.4	0	0	19,568.40
Transmission Link from local lower Llagas recharge to Lower Llagas Rec	3,008.70	294.6	2,415.60	1,921.30	383	484.2	1,466.60	4,340.00	6,435.90	4,023.90	4,237.20	343,480.30
Transmission Link from local penitencia creek to Penitencia Creek Rech	1,335.80	140	0	427	334	484	227	410	747	465	81	36,831.00
Transmission Link from local regnart creek to Regnart Creek Recharge	276.7	14	359.5	15	20	4	1	73.3	189.4	451.7	451.7	16,905.20
Transmission Link from local release 2 ford ponds to Ford Pond Recharg	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local release 2 upper coyote to Coyote Upper Re	15,207.60	2,336.40	11,947.30	15,768.70	7,609.80	95.3	0	7,055.40	8,112.40	14,283.70	14,402.50	1,087,974.30
Transmission Link from local rodeo creek to Rodeo Creek Recharge	67.6	2	126	2	3	0	0	16	50	178.7	178.7	5,039.10
Transmission Link from local ross creek recharge to Ross Creek Recharg	863.8	290	1,186.50	487	421	364	364	517	633	888	888	57,594.10
Transmission Link from local san tomoa creek to San Tomas Creek Rech	691.4	188.5	782.1	299.1	271.5	170.3	233.9	311.8	388.5	771.9	771.9	48,548.10
Transmission Link from local saratoga div to NC IWRP recharge	0	267.8	2,365.50	468.2	245	519	405.4	524	1,050.20	2,004.90	2,004.90	104,584.70
Transmission Link from local saratogo creek to Saratoga Creek Recharge	2,683.40	380.2	3,168.50	664.8	348	737	575.6	744.1	1,491.30	2,847.00	2,847.00	149,936.70
Transmission Link from local silver creek to Silver Creek Recharge	722.4	85	703.2	715	331	93	262	58	103	730	730	52,869.00
Transmission Link from local stevens creek to Stevens Creek Recharge	2,532.30	599.6	3,515.90	3,650.00	2,484.30	1,437.40	1,362.20	2,691.50	3,631.60	3,650.00	3,650.00	272,364.70
Transmission Link from local thompson creek to Thompson Creek Rechar	750.7	47	1,049.80	617	362	52	178	32	109	927	927	53,890.40
Transmission Link from local wildcat creek to Wildcat Creek Recharge	443.5	122.5	508.4	194.4	176.5	110.7	152.1	202.7	252.5	484.1	484.1	30,360.90
Sum	79,368.80	15,351.00	107,744.70	70,913.30	36,761.20	28,354.50	24,112.70	55,000.00	74,555.10	86,173.00	84,911.40	7,085,953.60
Demand Reduction Factor	0	0	0	0	0	0	0	0	-0.05	0	0	

WEAP Output Max Flexibility 2035

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	2003	Sum
Groundwater Storage (Acre-foot)	Groundwate	Groundwater S	Groundwater	Groundwater St	Groundwater S	Groundwater	Groundwater	Groundwater S	Groundwater	Groundwater S	Groundwater Storage (Acre-foo	
Coyote Subbasin	19,795.50	12,547.20	22,558.70	21,536.30	15,292.30	1,969.70	0	0	1,182.20	23,008.10	22,616.20	
LlagasSubbasin	72,872.80	118,508.90	144,334.90	133,229.80	126,137.70	120,816.20	115,362.10	117,431.40	120,840.20	142,418.10	139,931.00	
North County Santa Clara Sbb	282,325.00	303,638.80	343,353.90	310,467.50	292,713.90	284,816.30	227,242.20	168,376.30	133,148.40	332,112.30	327,954.80	
Sum	374,993.30	434,694.90	510,247.60	465,233.50	434,143.90	407,602.20	342,604.40	285,807.70	255,170.70	497,538.60	490,502.00	
Reservoir Storage Volume (Acre-foot)	Reservoir St	Reservoir Stor	Reservoir Sto	Reservoir Stora	Reservoir Stora	Reservoir Sto	Reservoir Sto	Reservoir Stor	Reservoir Stor	Reservoir Stora	Reservoir Storage Volume (Acr	
Almaden Reservoir	200	200	200	200	200	200	200	200	200	677	200	
Anderson Reservoir	22,000.00	22,000.00	69,222.80	40,027.60	21,939.30	21,954.30	21,550.40	22,000.00	22,000.00	49,276.80	35,487.20	
Calero Reservoir	1,000.00	21,638.80	23,200.00	23,200.00	16,213.00	3,742.80	1,000.00	1,000.00	6,467.60	23,200.00	23,200.00	
Chesbro Reservoir	500	500	4,586.00	500	436.5	451.7	500	500	1,293.40	4,586.00	2,817.10	
Coyote Reservoir	1,000.00	1,000.00	5,200.00	5,200.00	997.2	993.7	910.4	1,000.00	1,000.00	5,200.00	5,200.00	
Guadalupe Reservoir	200	168.9	1,700.00	218.3	200	200	200	200	200	1,700.00	722.3	
Lexington Reservoir	2,621.40	4,043.90	16,000.00	6,888.40	4,641.50	3,427.30	2,771.30	4,896.80	6,868.90	12,527.30	10,080.70	
Pacheco Reservoir	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	
Stevens Creek Reservoir	31	181.5	2,368.00	513	31	31	31	31	1,459.00	2,368.00	2,119.90	
Uvas Reservoir	2,524.90	2,824.10	5,957.60	1,138.50	1,104.10	557.6	500	3,650.50	6,249.70	6,258.00	6,245.60	
cvp caryover	0	0	0	24,120.00	0	0	0	0	0	35,461.50	44,170.20	
cvp overflow not used	0	291,382.90	536,328.00	536,328.00	536,328.00	536,328.00	536,328.00	536,328.00	536,328.00	598,316.50	598,316.50	
semitropic reservoir	242,532.10	347,053.40	350,000.00	350,000.00	334,520.30	318,182.00	282,445.50	248,138.10	219,434.20	349,949.30	349,996.70	
swp caryyover	0	0	0	16,080.00	0	0	0	0	0	23,641.00	29,446.80	
swp overflow not used	0	146,812.00	309,633.10	309,633.10	309,633.10	309,633.10	309,633.10	309,633.10	309,633.10	314,113.70	314,113.70	
Sum	277,609.40	842,805.50	1,329,395.50	1,319,046.90	1,231,244.10	1,200,701.50	1,161,069.80	1,132,577.60	1,116,134.10	1,432,275.00	1,427,116.70	
Groundwater Natural Recharge (Acre-foot)	Groundwate	Groundwater N	Groundwater	Groundwater N	Groundwater N	Groundwater	Groundwater	Groundwater N	Groundwater N	Groundwater N	Groundwater N	Groundwater N
Coyote Subbasin	2,535.00	1,326.90	5,335.00	1,838.80	1,544.90	1,101.90	1,457.80	2,541.20	3,273.60	2,141.80	1,990.30	183,393.10
LlagasSubbasin	18,129.30	21,464.50	32,000.40	21,397.30	20,951.50	19,716.10	21,162.80	21,993.90	19,018.50	23,642.90	22,257.30	1,802,330.50
North County Santa Clara Sbb	38,509.30	51,285.70	51,781.40	36,433.90	41,905.40	42,780.40	56,319.30	26,833.40	15,441.40	32,270.70	25,956.40	3,028,956.00
Sum	59,173.60	74,077.10	89,116.80	59,670.00	64,401.80	63,598.40	78,939.90	51,368.50	37,733.50	58,055.40	50,204.00	5,014,679.70
Transmission Link Flow (Acre-foot)	Transmissio	Transmission	Transmission	Transmission Li	Transmission L	Transmission	Transmission	Transmission L	Transmission	Transmission L	Transmission L	Transmission L
Transmission Link from lake elsman to sjw west to SJ Water Company	12,613.80	3,909.80	20,418.80	8,945.20	6,423.50	9,622.00	6,386.90	9,692.40	8,471.00	11,383.90	21,422.80	1,210,553.60
Transmission Link from stanford water to Stanford Moffett Field Ames	823	64	692	187	160	303	174	296	160	681	976	51,733.20
Sum	13,436.80	3,973.80	21,110.80	9,132.20	6,583.50	9,925.00	6,560.90	9,988.40	8,631.00	12,064.90	22,398.80	1,262,286.80
Transmission Link Flow (Acre-foot)	Transmissio	Transmission	Transmission	Transmission Li	Transmission L	Transmission	Transmission	Transmission L	Transmission	Transmission L	Transmission L	Transmission L
Transmission Link from deliver recycled to gilroy to Gilroy Service Ar	1,600.00	1,600.00	1,600.00	1,600.00	1,600.00	1,600.00	1,600.00	1,600.00	1,600.00	1,600.00	1,600.00	131,196.60
Transmission Link from recycle pa to palo alto to Palo Alto Service Ar	1,055.80	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	69,136.20
Transmission Link from recycle sv to sunnyvale to Sunnyvale Service Ar	1,900.00	2,400.00	2,400.00	2,400.00	2,400.00	2,400.00	2,400.00	2,400.00	2,400.00	2,400.00	2,400.00	196,297.10
Transmission Link from recycled 1 to Llagas Ag	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	98,400.00
Transmission Link from recycled SB to SJWC to SJ Water Company	3,060.90	3,110.90	3,110.90	3,110.90	3,110.90	3,041.70	3,041.70	3,041.70	3,041.70	3,110.90	3,110.90	254,694.60
Transmission Link from recycled SB to santa clara to Santa Clara Servi	4,680.00	4,680.00	4,680.00	4,680.00	4,680.00	4,680.00	4,680.00	4,680.00	4,680.00	4,680.00	4,680.00	383,760.00
Transmission Link from recycled pa to mountain view to Mountain View S	994.2	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	98,961.30
Transmission Link from recycled sb to milpitas to Milpitas Service Are	2,106.00	2,106.00	2,106.00	2,106.00	2,106.00	2,106.00	2,106.00	2,106.00	2,106.00	2,106.00	2,106.00	172,692.00
Transmission Link from recycled sb to sj muni north to SJ Muni North	9,481.10	9,770.50	9,770.50	9,770.50	9,770.50	9,839.70	9,839.70	9,839.70	9,839.70	9,770.50	9,770.50	801,237.30
Transmission Link from recycled sb to sjMuni edenvale to SJ Muni servi	4,071.60	3,732.30	3,732.30	3,732.30	3,732.30	3,732.30	3,732.30	3,732.30	3,732.30	3,732.30	3,732.30	306,387.90

WEAP Output Max Flexibility 2035

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	2003	Sum
Sum	30,149.60	30,649.50	30,649.50	30,649.50	30,649.50	30,649.50	30,649.50	30,649.50	30,649.50	30,649.50	30,649.50	2,512,763.10
Transmission Link Flow (Acre-foot)	Transmissio	Transmission L	Transmission	Transmission Li	Transmission L	Transmission	Transmission	Transmission L	Transmission L	Transmission L	Transmission L	Transmission L
Transmission Link from hh to PHills to Purisma Hills Service Area	1,842.00	1,842.00	1,842.00	1,842.00	1,842.00	1,481.00	1,481.00	1,281.00	1,481.00	1,842.00	1,842.00	147,756.00
Transmission Link from hh to Sunnyvale to Sunnyvale Service Area	10,158.00	10,158.00	10,158.00	10,158.00	10,158.00	10,945.00	10,945.00	9,458.00	10,945.00	10,158.00	10,158.00	836,278.00
Transmission Link from hh to milpitas service area to Milpitas Service	10,010.00	10,010.00	10,010.00	10,010.00	10,010.00	7,754.00	7,754.00	6,702.00	7,754.00	10,010.00	10,010.00	800,668.00
Transmission Link from hh to moffett ames to Stanford Moffett Field Am	3,445.00	3,445.00	3,445.00	3,445.00	3,445.00	2,539.00	2,539.00	2,193.00	2,539.00	3,445.00	3,445.00	274,550.00
Transmission Link from hh to mountain view to Mountain View Service Ar	12,840.00	12,840.00	12,840.00	12,840.00	12,840.00	10,594.90	10,594.90	9,150.40	10,594.90	12,840.00	12,840.00	1,032,011.80
Transmission Link from hh to palo alto to Palo Alto Service Area	14,631.50	14,739.90	14,739.90	14,739.90	14,739.90	12,395.00	12,395.00	10,709.00	12,395.00	14,739.90	14,739.90	1,186,006.10
Transmission Link from hh to santa clara to Santa Clara Service Area	5,119.00	5,119.00	5,119.00	5,119.00	5,119.00	1,942.00	1,942.00	1,679.00	1,942.00	5,119.00	5,119.00	393,816.00
Transmission Link from hh to sj muni n to SJ Muni North	5,119.00	5,119.00	5,119.00	5,119.00	5,119.00	3,283.00	3,283.00	2,838.00	3,283.00	5,119.00	5,119.00	404,180.00
Sum	63,164.50	63,272.90	63,272.90	63,272.90	63,272.90	50,933.90	50,933.90	44,010.40	50,933.90	63,272.90	63,272.90	5,075,265.90
Transmission Link Flow (Acre-foot)	Transmissio	Transmission L	Transmission	Transmission Li	Transmission L	Transmission	Transmission	Transmission L	Transmission L	Transmission L	Transmission L	Transmission L
Transmission Link from local stevens creek flood release to Tributary	0	0	35,524.30	0	0	0	0	0	642.9	2,069.00	1,792.40	403,065.30
Transmission Link from local uvas flood release to Tributary Inflow 5	0	0	35,212.70	0	0	0	0	1,311.80	4,696.40	13,033.60	14,064.10	1,033,452.70
Transmission Link from release from anderson to cvp pl to Anderson PL	420.5	4,434.10	59,652.30	2,174.20	3,884.70	95.9	159.1	4,253.40	6,312.90	971.2	967	602,841.50
Transmission Link from release from calero to cvp pl to Calero PL rele	0	1,303.90	0	922.3	1,625.90	405.6	0	0	1,252.80	922.3	922.3	58,245.70
Transmission Link from release from pacheco to Tributary Inflow 6	0	0	0	0	0	0	0	0	0	0	0	0
Sum	420.5	5,738.00	130,389.20	3,096.50	5,510.60	501.4	159.1	5,565.30	12,904.90	16,996.10	17,745.70	2,097,605.20
Streamflow (below node or reach listed) (All Rivers) (Acre-foot)	Streamflow (	Streamflow (be	Streamflow (b	Streamflow (bel	Streamflow (bel	Streamflow (b	Streamflow (b	Streamflow (be	Streamflow (be	Streamflow (bel	Streamflow (bel	Streamflow (bel
SWP 1 Supply 0 \ Headflow	61,999.10	10,999.80	96,998.60	29,999.60	29,999.60	56,999.20	21,999.70	27,999.60	23,999.60	63,999.10	60,999.10	4,939,927.40
cvp 0 source supply 0 \ Headflow	121,128.40	69,175.90	152,497.80	94,555.50	64,999.00	100,323.60	64,999.00	75,023.60	81,706.60	108,114.60	111,198.50	8,991,576.10
Demand Site Inflows and Outflows (Demand Site: NC Coyote Pond Rechar	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site Ir	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR Coyote	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from Lower Coyote Creek	10,233.10	1,770.00	10,365.60	10,950.00	6,845.60	79.9	782	4,016.30	4,080.60	10,950.00	10,950.00	795,331.70
Inflow from cvp 3 santa clara conduit	291.7	2,745.00	0	0	0	0	0	0	930	0	0	11,872.40
Outflow to North County Santa Clara Sbb	-10,524.80	-4,515.00	-10,365.60	-10,950.00	-6,845.60	-79.9	-782	-4,016.30	-5,010.60	-10,950.00	-10,950.00	-807,204.10
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Ford Pond Recharge) (A	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site Ir	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR Coyote	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from Lower Coyote Creek	0	0	0	0	0	0	0	0	0	0	0	0
Outflow to North County Santa Clara Sbb	0	0	0	0	0	0	0	0	0	0	0	0
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Los Gatos Ponds) (Acre-	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site Ir	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR LG Ponds	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from Los Gatos Creek	1,797.10	1,312.00	0	4,563.10	765.10	1,346.30	656.80	1,313.70	4,907.60	4,409.70	1,915.60	353,062.70
Inflow from SWP 3 central pipeline	0	2,842.30	0	1,662.60	4,768.70	55.4	3,586.40	5,205.20	1,058.50	3,977.20	0	108,787.10
Inflow from cvp 7 central pl	18,592.70	5,120.00	0	2,001.50	3,446.70	10,497.30	0	4,956.30	5,768.60	3,977.20	40.4	227,874.80
Outflow to North County Santa Clara Sbb	-20,389.80	-9,274.30	0	-8,227.20	-8,980.50	-11,899.00	-4,243.20	-11,475.20	-11,734.70	-12,364.10	-1,956.00	-689,724.50
Sum	0	0	0	0	0	0	0	0	0	0	0	0

WEAP Output Max Flexibility 2035

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	2003	Sum
Demand Site Inflows and Outflows (Demand Site: Almaden and Guadalupe	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from Guadalupe Creek	6,362.70	8,030.00	0	6,666.00	8,030.00	8,030.00	3,776.00	6,193.70	7,664.20	5,390.00	660.00	321,204.00
Inflow from IPR Guadalupe	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 4 almaden valley pipeline	193.1	0	0	0	0	0	0	0	0	0	0	193.10
Inflow from cvp 5 almaden valley pl	195.8	0	0	0	0	0	0	0	0	0	0	195.80
Outflow to North County Santa Clara Sbb	-6,751.60	-8,030.00	0	-6,666.00	-8,030.00	-8,030.00	-3,776.00	-6,193.70	-7,664.20	-5,390.00	-660.00	-321,593.00
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Kooser) (Acre-foot)	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR Guadalupe	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 4 almaden valley pipeline	71.5	486.4	0	484.8	388.8	427.2	0	0	0	392	48	14,824.80
Inflow from cvp 5 almaden valley pl	221.3	729.6	0	484.8	388.8	0	0	292.8	576	392	48	26,560.60
Outflow to North County Santa Clara Sbb	-292.8	-1,216.00	0	-969.60	-777.6	-427.2	0	-292.8	-576	-784	-96	-41,385.40
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Los Capitancillos Ponds)	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from Guadalupe Creek	2,141.90	23	2,764.20	1,817.80	1,461.10	1,835.30	1,223.70	1,432.80	1,915.00	2,144.00	2,775.40	194,234.10
Inflow from IPR Guadalupe	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 4 almaden valley pipeline	70.2	810.7	0	408	312.4	30.1	0	0	0	245.3	64.6	8,011.80
Inflow from cvp 5 almaden valley pl	71.2	1,216.00	0	419.4	328	0	0	0	0	245.3	80	13,011.90
Outflow to North County Santa Clara Sbb	-2,283.30	-2,049.70	-2,764.20	-2,645.20	-2,101.50	-1,865.40	-1,223.70	-1,432.80	-1,915.00	-2,634.70	-2,920.00	-215,257.80
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Overfelt Ponds) (Acre-foo	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR Penitencia	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from Penitencia Creek	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 2 SBA pipeline	362	1,460.00	1,460.00	1,460.00	1,239.90	1,272.40	57.8	593.4	896.5	1,460.00	1,460.00	109,257.70
Outflow to North County Santa Clara Sbb	-362	-1,460.00	-1,460.00	-1,460.00	-1,239.90	-1,272.40	-57.8	-593.4	-896.5	-1,460.00	-1,460.00	-109,257.70
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Penitencia Ponds) (Acre-	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR Penitencia	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from Penitencia Creek	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 2 SBA pipeline	615.4	2,482.00	2,482.00	2,482.00	2,107.90	2,163.10	98.2	1,008.80	1,524.00	2,482.00	2,482.00	185,738.10
Outflow to North County Santa Clara Sbb	-615.4	-2,482.00	-2,482.00	-2,482.00	-2,107.90	-2,163.10	-98.2	-1,008.80	-1,524.00	-2,482.00	-2,482.00	-185,738.10
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link Flow (Acre-foot)	Transmissio	Transmission	Transmission	Transmission Li	Transmission L	Transmission	Transmission	Transmission L	Transmission	Transmission L	Transmission L	Transmission L
Transmission Link from Uvas release to Llagas recharge to Church Pond	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from anderson release to butterfield to Butterfield	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from anderson release to madronne to Madrone Ponds	7,246.00	1,490.90	1,823.40	3,005.70	3,065.80	679.5	207.3	2,337.50	2,959.90	2,919.90	2,550.40	284,924.20
Transmission Link from lex pl 1 to Rinconanda WTP	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 10 to NC IWRP recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 2 to San Tomas Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 3 to Wildcat Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0

WEAP Output Max Flexibility 2035

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	2003	Sum
Transmission Link from lex pl 4 to Saratoga Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 5 to Rodeo Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 6 to Calabazas Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 7 to Regnart Creek Recharge	0	0	281.9	0	0	0	0	0	88.3	49.3	109.6	10,667.90
Transmission Link from lex pl 8 to Mcclellan Pond recharge	0	0	1,418.80	0	0	0	0	0	483	148.8	812.3	46,896.70
Transmission Link from lex pl 9 to Stevens Creek Recharge	0	0	194.8	0	0	0	0	0	0	0	0	1,008.50
Transmission Link from local 2 coyote pond recharge to Coyote Pond Re	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local 2 guad creek to Guadalupe creek	5,610.80	7,081.00	7,081.00	7,081.00	7,081.00	7,081.00	3,329.80	5,461.70	6,758.50	7,081.00	7,081.00	566,095.60
Transmission Link from local 2 lower coyote recharge to lower coyote r	1,460.00	409.6	1,382.10	1,460.00	1,092.00	429.5	574.7	835.7	1,014.50	1,460.00	1,460.00	114,811.00
Transmission Link from local 2 overfelt to Overfelt Ponds	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local 2 pen ponds to Penitencia Ponds	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local 2 upper coyote to NC Upper Coyote Recha	171.7	42.9	0	146.9	134.9	45.9	64.3	108.4	125.3	118.7	12	6,699.50
Transmission Link from local Chesbro release to recharge to Church Pon	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local Uvas release to recharge to Uvas Recharge	10,117.80	1,787.30	4,241.20	7,567.60	4,461.60	9,556.80	6,995.30	8,713.50	10,117.80	6,791.40	5,932.10	619,534.20
Transmission Link from local alamitos creek to Alamitos Creek recharge	1,106.50	529.3	2,073.10	1,142.50	1,072.90	1,580.40	1,019.90	1,151.40	1,482.50	1,563.30	2,160.70	149,280.30
Transmission Link from local anderson 2 coyote ponds to NC Coyote Pon	10,233.10	1,770.00	10,365.60	10,950.00	6,845.60	79.9	782	4,016.30	4,080.60	10,950.00	10,950.00	795,331.70
Transmission Link from local anderson release to main ave ponds to Mai	2,665.20	397.1	1,341.40	765	825	212.1	76.3	670.5	861.6	2,147.90	1,876.10	155,444.50
Transmission Link from local anderson res to Church Pond and Llagas Re	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local anderson res to Lower Llagas Recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local calabasas creek to Calabazas Creek Recha	1,149.00	236	1,387.70	141	353	200	50	374.4	1,015.20	1,869.00	1,869.00	71,875.40
Transmission Link from local calero creek to Calero Creek recharge	723	912.5	863.8	912.5	912.5	912.5	429.1	703.8	870.9	912.5	912.5	72,648.30
Transmission Link from local guadalupe 1 to Los Capitancillos Ponds	2,141.90	23	2,764.20	1,817.80	1,461.10	1,835.30	1,223.70	1,432.80	1,915.00	2,144.00	2,775.40	194,234.10
Transmission Link from local guadaupe 2 to Almaden and Guadalupe Po	6,362.70	8,030.00	0	6,666.00	8,030.00	8,030.00	3,776.00	6,193.70	7,664.20	5,390.00	660.00	321,204.00
Transmission Link from local lg creek diversion to Los Gatos Ck rechar	0	0	5,528.30	2,416.00	0	318.1	0	496	1,576.40	2,199.30	5,360.00	291,356.00
Transmission Link from local lg pond diversion to Los Gatos Ponds	1,797.10	1,312.00	0	4,563.10	765.10	1,346.30	656.80	1,313.70	4,907.60	4,409.70	1,915.60	353,062.70
Transmission Link from local lower Llagas recharge to Lower Llagas Rec	3,008.70	294.6	3,029.40	2,473.20	383	484.2	1,466.60	4,340.00	6,435.90	4,023.90	4,237.20	343,490.50
Transmission Link from local penitencia creek to Penitencia Creek Rech	1,335.80	164	0	427	334	484	227	410	747	653	5	35,536.50
Transmission Link from local regnart creek to Regnart Creek Recharge	276.7	14	352	15	20	4	1	73.3	189.4	451.7	451.7	16,857.00
Transmission Link from local release 2 ford ponds to Ford Pond Recharg	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local release 2 upper coyote to Coyote Upper Re	15,207.60	1,485.10	11,456.30	14,105.50	8,877.10	95.3	0	6,094.40	6,474.80	15,511.30	14,283.70	1,087,850.90
Transmission Link from local rodeo creek to Rodeo Creek Recharge	67.6	2	126	2	3	0	0	16	50	178.7	178.7	5,026.20
Transmission Link from local ross creek recharge to Ross Creek Recharg	863.8	290	1,154.80	487	421	364	364	517	633	888	888	57,457.00
Transmission Link from local san tomoa creek to San Tomas Creek Rech	691.4	188.5	763.9	299.1	271.5	170.3	233.9	311.8	388.5	771.9	771.9	48,479.60
Transmission Link from local saratoga div to NC IWRP recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local saratogo creek to Saratoga Creek Recharge	2,683.40	648	3,327.80	1,133.00	593	1,203.20	981	958.2	1,846.00	3,512.20	3,512.20	183,538.60
Transmission Link from local silver creek to Silver Creek Recharge	722.4	85	691	715	331	93	262	58	103	730	730	52,829.50
Transmission Link from local stevens creek to Stevens Creek Recharge	2,532.30	597.7	3,455.20	3,650.00	2,422.40	1,437.40	1,362.20	2,691.50	3,631.60	3,650.00	3,650.00	271,505.10
Transmission Link from local thompson creek to Thompson Creek Recha	750.7	47	1,031.60	617	362	52	178	32	109	927	927	53,820.00
Transmission Link from local wildcat creek to Wildcat Creek Recharge	443.5	122.5	496.5	194.4	176.5	110.7	152.1	202.7	252.5	484.1	484.1	30,316.40
Sum	79,368.80	27,960.00	66,631.70	72,753.20	50,294.90	36,805.40	24,412.90	49,514.30	66,782.10	81,936.50	76,556.20	6,241,781.90
Demand Reduction Factor	0	0	0	0	0	0	0	0	-0.05	0	0	

WEAP Output Minimize Costs 2035

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	2003	Sum
Groundwater Storage (Acre-foot)	Groundwate	Groundwater S	Groundwater	Groundwater St	Groundwater S	Groundwater	Groundwater	Groundwater S	Groundwater S	Groundwater S	Groundwater Storage (Acre-foo	
Coyote Subbasin	19,795.50	11,324.90	22,678.80	22,808.70	15,009.70	2,312.20	0	57.9	1,182.20	22,865.90	22,592.80	
LlagasSubbasin	72,872.80	119,222.20	142,326.70	133,550.20	126,014.70	120,693.20	114,846.30	116,093.90	118,291.10	142,114.80	142,349.30	
North County Santa Clara Sbb	282,325.00	265,685.10	338,084.60	308,392.10	273,442.90	253,908.00	194,159.20	134,122.10	98,375.90	329,427.80	326,082.30	
Sum	374,993.30	396,232.10	503,090.10	464,751.00	414,467.30	376,913.40	309,005.50	250,274.00	217,849.20	494,408.40	491,024.30	
Reservoir Storage Volume (Acre-foot)	Reservoir St	Reservoir Stor	Reservoir Stor	Reservoir Stora	Reservoir Stora	Reservoir Stor	Reservoir Sto	Reservoir Stora	Reservoir Stor	Reservoir Stora	Reservoir Storage Volume (Acr	
Almaden Reservoir	200	200	200	200	200	200	200	200	200	677	200	
Anderson Reservoir	22,000.00	22,000.00	69,864.00	38,419.10	21,939.30	21,954.30	21,550.40	22,000.00	22,000.00	49,882.60	35,317.90	
Calero Reservoir	1,000.00	730	8,900.00	1,000.00	932.6	1,000.00	1,000.00	996.5	2,236.00	4,457.50	8,000.20	
Chesbro Reservoir	500	500	4,586.00	500	436.5	451.7	500	500	1,293.40	4,586.00	2,234.80	
Coyote Reservoir	1,000.00	1,000.00	5,200.00	5,200.00	997.2	993.7	910.4	1,000.00	1,000.00	5,200.00	5,200.00	
Guadalupe Reservoir	200	168.9	1,700.00	200	200	200	200	200	200	1,700.00	200	
Lexington Reservoir	2,621.40	3,960.00	16,000.00	7,161.90	4,789.30	3,692.40	2,914.50	5,271.40	7,835.60	15,756.90	11,363.40	
Pacheco Reservoir	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	
Stevens Creek Reservoir	31	181.5	2,368.00	583.6	31	31	31	31	1,609.50	2,368.00	2,368.00	
Uvas Reservoir	2,524.90	2,824.10	5,987.70	732.8	1,104.10	557.6	500	3,963.60	6,258.00	6,258.00	6,258.00	
cvp caryover	0	0	0	12,353.10	0	0	0	0	0	13,247.40	10,091.10	
cvp overflow not used	0	40,075.70	200,143.70	200,143.70	200,143.70	200,143.70	200,143.70	200,143.70	200,143.70	213,918.70	213,918.70	
semitropic reservoir	242,532.10	263,418.60	346,992.80	350,000.00	326,316.30	309,223.30	273,486.80	239,167.80	210,108.60	315,936.60	319,588.80	
swp caryyover	0	0	0	8,235.40	0	0	0	0	0	9,280.30	6,872.70	
swp overflow not used	0	422.2	50,343.70	50,343.70	50,343.70	50,343.70	50,343.70	50,343.70	50,343.70	50,764.20	50,764.20	
Sum	277,609.40	340,481.00	717,285.90	680,073.30	612,433.80	593,791.40	556,780.60	528,817.70	508,228.50	699,033.20	677,377.80	
Groundwater Natural Recharge (Acre-foot)	Groundwate	Groundwater N	Groundwater	Groundwater Na	Groundwater N	Groundwater	Groundwater	Groundwater N	Groundwater N	Groundwater N	Groundwater N	Groundwater N
Coyote Subbasin	2,535.00	1,326.90	5,335.00	1,838.80	1,544.90	1,101.90	1,457.80	2,541.20	3,273.60	2,141.80	1,990.30	183,393.10
LlagasSubbasin	18,129.30	21,464.50	32,000.40	21,397.30	20,951.50	19,716.10	21,162.70	21,993.90	19,018.50	23,642.90	22,257.30	1,802,330.50
North County Santa Clara Sbb	38,509.30	51,285.70	51,781.40	36,433.90	41,905.40	42,780.40	56,319.30	26,833.40	15,441.40	32,270.70	25,956.40	3,028,956.00
Sum	59,173.60	74,077.10	89,116.80	59,670.00	64,401.80	63,598.40	78,939.80	51,368.50	37,733.50	58,055.40	50,204.00	5,014,679.70
Transmission Link Flow (Acre-foot)	Transmissio	Transmission	Transmission	Transmission Li	Transmission L	Transmission	Transmission	Transmission L	Transmission	Transmission L	Transmission L	Transmission L
Transmission Link from lake elsman to sjw west to SJ Water Company	12,613.80	1,362.00	14,943.80	3,997.90	3,455.90	6,503.90	3,720.90	6,431.90	3,455.90	7,405.90	15,947.80	815,457.00
Transmission Link from stanford water to Stanford Moffett Field Ames	823	64	692	187	160	303	174	296	160	681	976	51,733.20
Sum	13,436.80	1,426.00	15,635.80	4,184.90	3,615.90	6,806.90	3,894.90	6,727.90	3,615.90	8,086.90	16,923.80	867,190.30
Transmission Link Flow (Acre-foot)	Transmissio	Transmission	Transmission	Transmission Li	Transmission L	Transmission	Transmission	Transmission L	Transmission	Transmission L	Transmission L	Transmission L
Transmission Link from deliver recycled to gilroy to Gilroy Service Ar	1,600.00	1,600.00	1,600.00	1,600.00	1,600.00	1,600.00	1,600.00	1,600.00	1,600.00	1,600.00	1,600.00	131,196.60
Transmission Link from recycle pa to palo alto to Palo Alto Service Ar	1,055.80	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	69,136.20
Transmission Link from recycle sv to sunnyvale to Sunnyvale Service Ar	1,900.00	2,400.00	2,400.00	2,400.00	2,400.00	2,400.00	2,400.00	2,400.00	2,400.00	2,400.00	2,400.00	196,297.10
Transmission Link from recycled 1 to Llagas Ag	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	98,400.00
Transmission Link from recycled SB to SJWC to SJ Water Company	3,060.90	3,110.90	3,110.90	3,110.90	3,110.90	3,041.70	3,041.70	3,041.70	3,041.70	3,110.90	3,110.90	255,438.50
Transmission Link from recycled SB to santa clara to Santa Clara Servi	4,680.00	4,680.00	4,680.00	4,680.00	4,680.00	4,680.00	4,680.00	4,680.00	4,680.00	4,680.00	4,680.00	383,760.00
Transmission Link from recycled pa to mountain view to Mountain View S	994.2	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	98,961.30
Transmission Link from recycled sb to milpitas to Milpitas Service Are	2,106.00	2,106.00	2,106.00	2,106.00	2,106.00	2,106.00	2,106.00	2,106.00	2,106.00	2,106.00	2,106.00	172,692.00
Transmission Link from recycled sb to sj muni north to SJ Muni North	9,481.10	9,770.50	9,770.50	9,770.50	9,770.50	9,839.70	9,839.70	9,839.70	9,839.70	9,770.50	9,770.50	800,493.40
Transmission Link from recycled sb to sjMuni edenvale to SJ Muni servi	4,071.60	3,732.30	3,732.30	3,732.30	3,732.30	3,732.30	3,732.30	3,732.30	3,732.30	3,732.30	3,732.30	306,387.90

WEAP Output Minimize Costs 2035

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	2003	Sum
Sum	30,149.60	30,649.50	30,649.50	30,649.50	30,649.50	30,649.50	30,649.50	30,649.50	30,649.50	30,649.50	30,649.50	2,512,763.10
Transmission Link Flow (Acre-foot)	Transmissio	Transmission I	Transmission	Transmission Li	Transmission L	Transmission	Transmission	Transmission L	Transmission I	Transmission L	Transmission L	Transmission L
Transmission Link from hh to PHills to Purisma Hills Service Area	1,842.00	1,842.00	1,842.00	1,842.00	1,842.00	1,481.00	1,481.00	1,281.00	1,481.00	1,842.00	1,842.00	147,756.00
Transmission Link from hh to Sunnyvale to Sunnyvale Service Area	10,158.00	10,158.00	10,158.00	10,158.00	10,158.00	10,945.00	10,945.00	9,458.00	10,945.00	10,158.00	10,158.00	836,278.00
Transmission Link from hh to milpitas service area to Milpitas Service	10,010.00	10,010.00	10,010.00	10,010.00	10,010.00	7,754.00	7,754.00	6,702.00	7,754.00	10,010.00	10,010.00	800,668.00
Transmission Link from hh to moffett ames to Stanford Moffett Field Am	3,445.00	3,445.00	3,445.00	3,445.00	3,445.00	2,539.00	2,539.00	2,193.00	2,539.00	3,445.00	3,445.00	274,550.00
Transmission Link from hh to mountain view to Mountain View Service Ar	12,840.00	12,840.00	12,840.00	12,840.00	12,840.00	10,594.90	10,594.90	9,150.40	10,594.90	12,840.00	12,840.00	1,031,886.90
Transmission Link from hh to palo alto to Palo Alto Service Area	14,631.50	14,739.90	14,739.90	14,739.90	14,739.90	12,395.00	12,395.00	10,709.00	12,395.00	14,739.90	14,739.90	1,184,955.00
Transmission Link from hh to santa clara to Santa Clara Service Area	5,119.00	5,119.00	5,119.00	5,119.00	5,119.00	1,942.00	1,942.00	1,679.00	1,942.00	5,119.00	5,119.00	393,816.00
Transmission Link from hh to sj muni n to SJ Muni North	5,119.00	5,119.00	5,119.00	5,119.00	5,119.00	3,283.00	3,283.00	2,838.00	3,283.00	5,119.00	5,119.00	404,180.00
Sum	63,164.50	63,272.90	63,272.90	63,272.90	63,272.90	50,933.90	50,933.90	44,010.40	50,933.90	63,272.90	63,272.90	5,074,090.00
Transmission Link Flow (Acre-foot)	Transmissio	Transmission I	Transmission	Transmission Li	Transmission L	Transmission	Transmission	Transmission L	Transmission I	Transmission L	Transmission L	Transmission L
Transmission Link from local stevens creek flood release to Tributary	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local uvas flood release to Tributary Inflow 5	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from release from anderson to cvp pl to Anderson PL	420.5	4,611.70	59,652.30	2,174.20	4,851.80	95.9	159.1	4,253.40	5,938.20	971.2	967	613,041.40
Transmission Link from release from calero to cvp pl to Calero PL rele	0	0	0	922.3	0	0	0	0	248.7	0	0	7,714.80
Transmission Link from release from pacheco to Tributary Inflow 6	0	0	0	0	0	0	0	0	0	0	0	0
Sum	420.5	4,611.70	59,652.30	3,096.50	4,851.80	95.9	159.1	4,253.40	6,186.80	971.2	967	620,756.30
Streamflow (below node or reach listed) (All Rivers) (Acre-foot)	Streamflow (	Streamflow (be	Streamflow (b	Streamflow (bel	Streamflow (bel	Streamflow (b	Streamflow (b	Streamflow (be	Streamflow (be	Streamflow (be	Streamflow (bel	Streamflow (bel
SWP 1 Supply 0 \ Headflow	61,999.10	10,999.80	96,998.60	29,999.60	29,999.60	56,999.20	21,999.70	27,999.60	23,999.60	63,999.10	60,999.10	4,939,927.40
cvp 0 source supply 0 \ Headflow	121,128.40	69,175.90	152,497.80	94,555.50	64,999.00	100,323.60	64,999.00	75,023.60	81,706.60	108,114.60	111,198.50	8,991,576.10
Demand Site Inflows and Outflows (Demand Site: NC Coyote Pond Rechar	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site Ir	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR Coyote	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from Lower Coyote Creek	10,233.10	1,884.30	10,950.00	10,950.00	6,129.00	79.9	782	4,016.30	4,080.60	10,950.00	10,950.00	796,680.20
Inflow from cvp 3 santa clara conduit	291.7	915	0	0	0	0	0	0	930	0	0	5,484.30
Outflow to North County Santa Clara Sbb	-10,524.80	-2,799.30	-10,950.00	-10,950.00	-6,129.00	-79.9	-782	-4,016.30	-5,010.60	-10,950.00	-10,950.00	-802,164.50
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Ford Pond Recharge) (A	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site Ir	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR Coyote	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from Lower Coyote Creek	0	0	0	0	0	0	0	0	0	0	0	0
Outflow to North County Santa Clara Sbb	0	0	0	0	0	0	0	0	0	0	0	0
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Los Gatos Ponds) (Acre-	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site Ir	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR LG Ponds	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from Los Gatos Creek	1,797.10	3,501.80	0	8,330.60	3,635.00	4,169.30	3,338.70	4,306.10	8,419.00	5,528.00	5,933.20	670,850.00
Inflow from SWP 3 central pipeline	0	1,507.00	0	1,193.30	5,180.40	116.2	2,579.30	3,289.30	412.1	3,785.30	0	90,935.40
Inflow from cvp 7 central pl	18,592.70	1,720.60	0	1,325.70	1,874.80	7,613.50	0	4,147.80	3,067.90	4,497.40	0	205,197.90
Outflow to North County Santa Clara Sbb	-20,389.80	-6,729.30	0	-10,849.60	-10,690.20	-11,899.00	-5,918.00	-11,743.20	-11,899.00	-13,810.70	-5,933.20	-966,983.30
Sum	0	0	0	0	0	0	0	0	0	0	0	0

WEAP Output Minimize Costs 2035

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	2003	Sum
Demand Site Inflows and Outflows (Demand Site: Almaden and Guadalupe	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site Ir	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from Guadalupe Creek	6,362.70	385.6	0	4,935.40	1,644.20	3,113.80	2,701.40	5,951.50	7,656.60	5,205.00	2,002.00	353,404.90
Inflow from IPR Guadalupe	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 4 almaden valley pipeline	193.1	933.60	0	865.9	850.9	532.6	0	17.8	0	0	0	10,787.10
Inflow from cvp 5 almaden valley pl	195.8	880	0	957.5	880	0	0	0	0	141	0	15,726.60
Outflow to North County Santa Clara Sbb	-6,751.60	-2,199.20	0	-6,758.90	-3,375.10	-3,646.40	-2,701.40	-5,969.40	-7,656.60	-5,346.00	-2,002.00	-379,918.70
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Kooser) (Acre-foot)	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site Ir	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR Guadalupe	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 4 almaden valley pipeline	71.5	203.7	0	534.4	241.6	333.2	0	5	0	388.8	145.6	17,561.10
Inflow from cvp 5 almaden valley pl	221.3	192	0	534.4	241.6	0	0	292.8	753.1	388.8	145.6	31,802.50
Outflow to North County Santa Clara Sbb	-292.8	-395.7	0	-1,068.80	-483.2	-333.2	0	-297.8	-753.1	-777.6	-291.2	-49,363.50
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Los Capitancillos Ponds)	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site Ir	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from Guadalupe Creek	2,141.90	23	2,920.00	1,205.60	597.9	1,132.30	982.3	1,432.80	1,914.50	2,047.40	2,564.70	180,469.30
Inflow from IPR Guadalupe	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 4 almaden valley pipeline	70.2	339.6	0	597.3	309.4	193.7	0	6.5	0	339.3	80	11,838.80
Inflow from cvp 5 almaden valley pl	71.2	320	0	653.3	320	0	0	0	80.8	408	80	18,225.50
Outflow to North County Santa Clara Sbb	-2,283.30	-682.6	-2,920.00	-2,456.20	-1,227.30	-1,326.00	-982.3	-1,439.20	-1,995.30	-2,794.70	-2,724.70	-210,533.70
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Overfelt Ponds) (Acre-foo	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site Ir	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR Penitencia	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from Penitencia Creek	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 2 SBA pipeline	362	728	1,460.00	1,460.00	871.6	1,316.70	109.3	693.4	1,185.10	1,460.00	1,460.00	104,527.60
Outflow to North County Santa Clara Sbb	-362	-728	-1,460.00	-1,460.00	-871.6	-1,316.70	-109.3	-693.4	-1,185.10	-1,460.00	-1,460.00	-104,527.60
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Penitencia Ponds) (Acre-	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site Ir	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR Penitencia	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from Penitencia Creek	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 2 SBA pipeline	615.4	1,237.60	2,482.00	2,482.00	1,481.80	2,238.50	185.8	1,178.80	2,014.70	2,482.00	2,482.00	177,696.90
Outflow to North County Santa Clara Sbb	-615.4	-1,237.60	-2,482.00	-2,482.00	-1,481.80	-2,238.50	-185.8	-1,178.80	-2,014.70	-2,482.00	-2,482.00	-177,696.90
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link Flow (Acre-foot)	Transmissio	Transmission I	Transmission	Transmission Li	Transmission L	Transmission	Transmission	Transmission L	Transmission I	Transmission L	Transmission L	Transmission L
Transmission Link from Uvas release to Llagas recharge to Church Pond	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from anderson release to butterfield to Butterfield	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from anderson release to madronne to Madrone Ponds	7,246.00	1,375.60	1,454.00	3,006.00	2,875.70	679.5	207.3	2,337.50	2,959.90	2,919.90	2,919.90	281,575.80
Transmission Link from lex pl 1 to Rinconanda WTP	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 10 to NC IWRP recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 2 to San Tomas Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 3 to Wildcat Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0

WEAP Output Minimize Costs 2035

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	2003	Sum
Transmission Link from lex pl 4 to Saratoga Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 5 to Rodeo Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 6 to Calabazas Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 7 to Regnart Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 8 to Mcclellan Pond recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 9 to Stevens Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local 2 coyote pond recharge to Coyote Pond Rec	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local 2 guad creek to Guadalupe creek	5,610.80	340	7,081.00	4,953.60	1,449.90	2,745.80	2,382.20	5,248.20	6,751.80	6,956.70	7,081.00	519,529.30
Transmission Link from local 2 lower coyote recharge to lower coyote r	1,460.00	438.3	1,460.00	1,460.00	1,073.10	429.5	574.7	835.7	1,014.50	1,460.00	1,460.00	115,304.30
Transmission Link from local 2 overfelt to Overfelt Ponds	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local 2 pen ponds to Penitencia Ponds	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local 2 upper coyote to NC Upper Coyote Rechar	171.7	45.8	0	159.3	132.2	45.9	64.3	108.4	125.3	115.1	44.4	8,554.80
Transmission Link from local Chesbro release to recharge to Church Pon	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local Uvas release to recharge to Uvas Recharge	10,117.80	1,787.30	3,381.80	7,650.70	4,059.60	9,556.80	6,995.30	8,713.50	10,117.80	6,791.40	6,791.40	621,258.70
Transmission Link from local alamitos creek to Alamitos Creek recharge	1,106.50	101.7	2,190.00	947.9	447	849.2	736.8	1,151.40	1,482.20	1,413.50	2,067.20	141,446.50
Transmission Link from local anderson 2 coyote ponds to NC Coyote Pon	10,233.10	1,884.30	10,950.00	10,950.00	6,129.00	79.9	782	4,016.30	4,080.60	10,950.00	10,950.00	796,680.20
Transmission Link from local anderson release to main ave ponds to Mai	2,665.20	392.5	1,069.60	765	792.9	212.1	76.3	670.5	861.6	2,147.90	2,147.90	154,144.30
Transmission Link from local anderson res to Church Pond and Llagas Re	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local anderson res to Lower Llagas Recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local calabasas creek to Calabazas Creek Recha	1,149.00	236	1,474.40	141	353	200	50	374.4	1,015.20	1,869.00	1,869.00	72,406.70
Transmission Link from local calero creek to Calero Creek recharge	723	43	912.5	638.3	186.8	353.8	307	676.3	870.1	896.5	912.5	66,873.80
Transmission Link from local guadalupe 1 to Los Capitancillos Ponds	2,141.90	23	2,920.00	1,205.60	597.9	1,132.30	982.3	1,432.80	1,914.50	2,047.40	2,564.70	180,469.30
Transmission Link from local guadaupe 2 to Almaden and Guadalupe Por	6,362.70	385.6	0	4,935.40	1,644.20	3,113.80	2,701.40	5,951.50	7,656.60	5,205.00	2,002.00	353,404.90
Transmission Link from local lg creek diversion to Los Gatos Ck rechar	0	290.8	5,840.00	3,700.70	192.3	496	74.2	496	2,416.00	2,393.70	5,840.00	298,618.60
Transmission Link from local lg pond diversion to Los Gatos Ponds	1,797.10	3,501.80	0	8,330.60	3,635.00	4,169.30	3,338.70	4,306.10	8,419.00	5,528.00	5,933.20	670,850.00
Transmission Link from local lower Llagas recharge to Lower Llagas Rec	3,008.70	294.6	2,415.60	2,502.00	383	484.2	1,466.60	4,340.00	6,435.90	4,023.90	4,851.00	344,459.50
Transmission Link from local penitencia creek to Penitencia Creek Rech	1,335.80	164	0	579	334	484	227	410	747	639	81	45,497.40
Transmission Link from local regnart creek to Regnart Creek Recharge	276.7	14	366.3	15	20	4	1	73.3	189.4	451.7	451.7	16,995.90
Transmission Link from local release 2 ford ponds to Ford Pond Recharg	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local release 2 upper coyote to Coyote Upper Re	15,207.60	2,455.20	10,228.70	15,768.70	7,322.00	95.3	0	6,094.40	6,849.60	14,283.70	14,402.50	1,080,245.20
Transmission Link from local rodeo creek to Rodeo Creek Recharge	67.6	2	126	2	3	0	0	16	50	178.7	178.7	5,041.90
Transmission Link from local ross creek recharge to Ross Creek Recharg	863.8	290	1,234.00	487	421	364	364	517	633	888	888	57,927.10
Transmission Link from local san tomoa creek to San Tomas Creek Rech	691.4	188.5	822.4	299.1	271.5	170.3	233.9	311.8	388.5	771.9	771.9	48,813.60
Transmission Link from local saratoga div to NC IWRP recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local saratogo creek to Saratoga Creek Recharge	2,683.40	648	3,604.40	1,133.00	593	1,203.20	981	958.2	1,846.00	3,512.20	3,512.20	185,108.40
Transmission Link from local silver creek to Silver Creek Recharge	722.4	85	730	715	331	93	262	58	103	730	730	53,071.30
Transmission Link from local stevens creek to Stevens Creek Recharge	2,532.30	599.6	3,650.00	3,650.00	2,484.30	1,437.40	1,362.20	2,691.50	3,631.60	3,650.00	3,650.00	273,375.80
Transmission Link from local thompson creek to Thompson Creek Rechar	750.7	47	1,090.00	617	362	52	178	32	109	927	927	54,156.00
Transmission Link from local wildcat creek to Wildcat Creek Recharge	443.5	122.5	534.5	194.4	176.5	110.7	152.1	202.7	252.5	484.1	484.1	30,533.50
Sum	79,368.80	15,756.20	63,535.10	74,806.30	36,270.10	28,562.20	24,500.10	52,023.50	70,920.60	81,234.10	83,511.20	6,476,342.90
Demand Reduction Factor	0	0	0	0	0	0	0	0	-0.05	0	0	

WEAP Output Strategy 2015

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	2003	Sum
Groundwater Storage (Acre-foot)	Groundwate	Groundwater S	Groundwater	Groundwater St	Groundwater S	Groundwater	Groundwater	Groundwater S	Groundwater	Groundwater S	Groundwater Storage (Acre-foo	
Coyote Subbasin	23,822.10	14,675.20	23,450.70	23,903.70	15,324.80	5,788.90	0	269.7	2,222.40	24,292.00	23,989.80	
LlagasSubbasin	63,589.90	109,512.90	140,243.80	126,138.40	114,458.50	109,168.60	103,238.20	101,738.60	101,522.30	135,354.00	136,289.90	
North County Santa Clara Sbb	308,747.60	286,120.60	345,360.00	313,475.50	297,809.90	279,308.50	229,279.90	179,674.20	149,800.20	330,372.00	326,428.60	
Sum	396,159.60	410,308.80	509,054.50	463,517.60	427,593.30	394,266.00	332,518.20	281,682.40	253,544.80	490,018.00	486,708.30	
Reservoir Storage Volume (Acre-foot)	Reservoir St	Reservoir Stor	Reservoir Sto	Reservoir Stora	Reservoir Stora	Reservoir Stor	Reservoir Sto	Reservoir Stor	Reservoir Stor	Reservoir Stora	Reservoir Storage Volume (Acr	
Almaden Reservoir	200	200	200	200	200	200	200	200	200	351	200	
Anderson Reservoir	26,492.70	20,793.90	46,300.00	22,000.00	21,939.30	21,954.30	21,550.40	22,000.00	22,000.00	45,104.90	38,647.90	
Calero Reservoir	1,000.00	706.6	5,600.00	1,000.00	932.6	1,000.00	1,000.00	993.9	2,233.30	4,457.50	5,263.10	
Chesbro Reservoir	500	500	4,586.00	500	436.5	451.7	500	500	1,293.40	4,586.00	2,234.80	
Coyote Reservoir	5,200.00	945.2	5,200.00	4,478.40	997.2	993.7	910.4	1,000.00	1,312.10	5,200.00	5,200.00	
Guadalupe Reservoir	200	168.9	1,188.00	200	200	200	200	200	200	1,188.00	200	
Lexington Reservoir	2,621.40	4,771.60	16,000.00	8,001.60	5,243.00	3,950.50	3,053.90	5,350.70	7,835.60	15,514.60	15,889.00	
Pacheco Reservoir	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	
Stevens Creek Reservoir	31	181.5	2,368.00	583.6	31	31	31	31	1,609.50	2,368.00	2,368.00	
Uvas Reservoir	2,524.90	2,824.10	5,987.70	500	1,104.10	557.6	500	3,963.60	6,258.00	6,258.00	6,258.00	
cvp caryover	0	0	0	36,105.80	0	0	0	0	0	49,755.80	50,059.70	
cvp overflow not used	0	262,194.20	477,529.70	477,529.70	477,529.70	477,529.70	477,529.70	477,529.70	477,529.70	537,955.70	537,955.70	
semitropic reservoir	247,088.60	281,752.30	345,001.70	305,267.80	289,965.30	282,568.60	246,832.30	210,246.70	177,909.30	318,525.00	318,672.30	
swp caryyover	0	0	0	17,408.80	0	0	0	0	0	20,000.00	20,000.00	
swp overflow not used	0	24,565.00	59,133.30	59,133.30	59,133.30	59,133.30	59,133.30	59,133.30	59,133.30	64,230.50	64,230.50	
Sum	290,858.60	604,603.30	974,094.40	937,909.00	862,712.20	853,570.40	816,441.20	786,148.90	762,514.20	1,080,495.00	1,072,179.00	
Groundwater Natural Recharge (Acre-foot)	Groundwate	Groundwater N	Groundwater	Groundwater N	Groundwater N	Groundwater	Groundwater	Groundwater N	Groundwater N	Groundwater N	Groundwater N	Groundwater N
Coyote Subbasin	2,535.00	1,326.90	5,335.00	1,838.80	1,544.90	1,101.90	1,457.80	2,541.20	3,273.60	2,141.80	1,990.30	183,393.10
LlagasSubbasin	18,129.30	21,464.50	32,000.40	21,397.30	20,951.50	19,716.10	21,162.80	21,993.90	19,018.50	23,642.90	22,257.30	1,802,330.50
North County Santa Clara Sbb	38,509.30	51,285.70	51,781.40	36,433.90	41,905.40	42,780.40	56,319.30	26,833.40	15,441.40	32,270.70	25,956.40	3,028,956.00
Sum	59,173.60	74,077.10	89,116.80	59,670.00	64,401.80	63,598.40	78,939.80	51,368.50	37,733.50	58,055.40	50,204.00	5,014,679.70
Transmission Link Flow (Acre-foot)	Transmissio	Transmission	Transmission	Transmission Li	Transmission L	Transmission	Transmission	Transmission L	Transmission	Transmission L	Transmission L	Transmission L
Transmission Link from lake elsman to sjw west to SJ Water Company	12,613.80	1,362.00	14,943.80	3,997.90	3,455.90	6,503.90	3,720.90	6,431.90	3,455.90	7,405.90	15,947.80	815,457.00
Transmission Link from stanford water to Stanford Moffett Field Ames	823	64	692	187	160	303	174	296	160	681	976	51,733.20
Sum	13,436.80	1,426.00	15,635.80	4,184.90	3,615.90	6,806.90	3,894.90	6,727.90	3,615.90	8,086.90	16,923.80	867,190.30
Transmission Link Flow (Acre-foot)	Transmissio	Transmission	Transmission	Transmission Li	Transmission L	Transmission	Transmission	Transmission L	Transmission	Transmission L	Transmission L	Transmission L
Transmission Link from deliver recycled to gilroy to Gilroy Service Ar	329	329	329	329	329	329	329	329	329	329	329	26,976.80
Transmission Link from recycle pa to palo alto to Palo Alto Service Ar	901.8	717.9	717.9	717.9	717.9	717.9	717.9	717.9	717.9	717.9	717.9	59,052.50
Transmission Link from recycle sv to sunnyvale to Sunnyvale Service Ar	1,801.00	1,801.00	1,801.00	1,801.00	1,801.00	1,801.00	1,801.00	1,801.00	1,801.00	1,801.00	1,801.00	147,679.80
Transmission Link from recycled 1 to Llagas Ag	1,071.00	1,071.00	1,071.00	1,071.00	1,071.00	1,071.00	1,071.00	1,071.00	1,071.00	1,071.00	1,071.00	87,821.60
Transmission Link from recycled SB to SJWC to SJ Water Company	1,995.10	1,995.10	1,995.10	1,995.10	1,995.10	1,995.10	1,995.10	1,995.10	1,995.10	1,995.10	1,995.10	163,598.60
Transmission Link from recycled SB to santa clara to Santa Clara Servi	3,990.60	3,990.60	3,990.60	3,990.60	3,990.60	3,990.60	3,990.60	3,990.60	3,990.60	3,990.60	3,990.60	327,229.20
Transmission Link from recycled pa to mountain view to Mountain View S	849.2	1,033.10	1,033.10	1,033.10	1,033.10	1,033.10	1,033.10	1,033.10	1,033.10	1,033.10	1,033.10	84,527.40
Transmission Link from recycled sb to milpitas to Milpitas Service Are	1,463.20	1,463.20	1,463.20	1,463.20	1,463.20	1,463.20	1,463.20	1,463.20	1,463.20	1,463.20	1,463.20	119,984.00
Transmission Link from recycled sb to sj muni north to SJ Muni North	4,097.00	4,243.30	4,243.30	4,243.30	4,243.30	4,243.30	4,243.30	4,243.30	4,243.30	4,243.30	4,243.30	347,807.40
Transmission Link from recycled sb to sjMuni edenvale to SJ Muni servi	1,755.90	1,609.50	1,609.50	1,609.50	1,609.50	1,609.50	1,609.50	1,609.50	1,609.50	1,609.50	1,609.50	132,128.80

WEAP Output Strategy 2015

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	2003	Sum
Sum	18,253.70	18,253.70	18,253.70	18,253.70	18,253.70	18,253.70	18,253.70	18,253.70	18,253.70	18,253.70	18,253.70	1,496,806.00
Transmission Link Flow (Acre-foot)	Transmissio	Transmission L	Transmission	Transmission Li	Transmission L	Transmission	Transmission	Transmission L	Transmission L	Transmission L	Transmission L	Transmission L
Transmission Link from hh to PHills to Purisma Hills Service Area	1,890.00	1,890.00	1,890.00	1,890.00	1,890.00	1,530.00	1,530.00	1,329.00	1,530.00	1,890.00	1,890.00	151,698.00
Transmission Link from hh to Sunnyvale to Sunnyvale Service Area	10,419.00	10,419.00	10,419.00	10,419.00	10,419.00	11,299.00	11,299.00	9,810.00	11,299.00	10,419.00	10,419.00	858,420.00
Transmission Link from hh to milpitas service area to Milpitas Service	10,267.00	10,267.00	10,267.00	10,267.00	10,267.00	8,006.00	8,006.00	6,951.00	8,006.00	10,267.00	10,267.00	821,696.00
Transmission Link from hh to moffett ames to Stanford Moffett Field Am	3,536.00	3,536.00	3,536.00	3,536.00	3,536.00	2,617.00	2,617.00	2,275.00	2,617.00	3,536.00	3,510.00	281,785.00
Transmission Link from hh to mountain view to Mountain View Service Ar	12,734.20	12,641.80	12,641.80	12,641.80	12,641.80	10,940.00	10,940.00	9,495.40	10,925.10	12,641.80	12,641.80	1,020,203.20
Transmission Link from hh to palo alto to Palo Alto Service Area	13,259.60	13,427.10	13,427.00	13,427.00	13,427.00	12,577.20	12,577.20	11,111.00	12,234.90	13,427.00	13,427.00	1,090,747.20
Transmission Link from hh to santa clara to Santa Clara Service Area	5,250.00	5,250.00	5,250.00	5,250.00	5,250.00	2,004.00	2,004.00	1,740.00	2,004.00	5,250.00	5,250.00	404,004.00
Transmission Link from hh to sj muni n to SJ Muni North	5,250.00	5,250.00	5,250.00	5,250.00	5,250.00	3,392.00	3,392.00	2,943.00	3,392.00	5,250.00	5,250.00	414,738.00
Sum	62,605.80	62,680.90	62,680.90	62,680.90	62,680.90	52,365.20	52,365.20	45,654.40	52,008.00	62,680.90	62,654.90	5,043,291.40
Transmission Link Flow (Acre-foot)	Transmissio	Transmission L	Transmission	Transmission Li	Transmission L	Transmission	Transmission	Transmission L	Transmission L	Transmission L	Transmission L	Transmission L
Transmission Link from local stevens creek flood release to Tributary	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local uvas flood release to Tributary Inflow 5	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from release from anderson to cvp pl to Anderson PL	0	0	44,780.10	908.2	538.40	327.9	442.7	3,107.50	3,479.00	0	2,338.80	709,725.20
Transmission Link from release from calero to cvp pl to Calero PL rele	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from release from pacheco to Tributary Inflow 6	0	0	0	0	0	0	0	0	0	0	0	0
Sum	0	0	44,780.10	908.2	538.40	327.9	442.7	3,107.50	3,479.00	0	2,338.80	709,725.20
Streamflow (below node or reach listed) (All Rivers) (Acre-foot)	Streamflow (	Streamflow (be	Streamflow (b	Streamflow (bel	Streamflow (bel	Streamflow (b	Streamflow (b	Streamflow (be	Streamflow (be	Streamflow (be	Streamflow (bel	Streamflow (bel
SWP 1 Supply 0 \ Headflow	61,999.10	10,999.80	96,998.60	29,999.60	29,999.60	56,999.20	21,999.70	27,999.60	23,999.60	63,999.10	60,999.10	4,939,927.40
cvp 0 source supply 0 \ Headflow	121,128.40	69,175.90	152,497.80	94,555.50	64,999.00	100,323.60	64,999.00	75,023.60	81,706.60	108,114.60	111,198.50	8,991,576.10
Demand Site Inflows and Outflows (Demand Site: NC Coyote Pond Rechar	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site In	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR Coyote	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from Lower Coyote Creek	10,950.00	6.6	9,340.10	10,950.00	3,841.90	320.4	782	5,326.80	6,373.40	10,950.00	10,950.00	807,174.50
Inflow from cvp 3 santa clara conduit	0	1,800.00	0	0	450.00	133.1	0	0	0	0	0	9,123.40
Outflow to North County Santa Clara Sbb	-10,950.00	-1,806.60	-9,340.10	-10,950.00	-4,291.90	-453.6	-782	-5,326.80	-6,373.40	-10,950.00	-10,950.00	-816,297.90
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Ford Pond Recharge) (A	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site In	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR Coyote	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from Lower Coyote Creek	0	0	0	0	0	0	0	0	0	0	0	0
Outflow to North County Santa Clara Sbb	0	0	0	0	0	0	0	0	0	0	0	0
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Los Gatos Ponds) (Acre-	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site In	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR LG Ponds	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from Los Gatos Creek	1,797.10	4,042.80	0	8,302.70	3,917.50	4,365.00	3,388.80	4,360.30	8,498.40	4,462.20	0	374,326.70
Inflow from SWP 3 central pipeline	0	1,805.40	0	155.6	3,263.50	0	839.30	1,094.40	0	1,325.70	0	39,174.90
Inflow from cvp 7 central pl	21,051.00	2,247.00	0	506.7	3,325.50	6,667.50	1,444.00	6,152.90	3,400.60	1,369.40	0	115,368.80
Outflow to North County Santa Clara Sbb	-22,848.10	-8,095.20	0	-8,965.00	-10,506.40	-11,032.40	-5,672.10	-11,607.50	-11,899.00	-7,157.30	0	-528,870.40
Sum	0	0	0	0	0	0	0	0	0	0	0	0
												1,496,806.00

WEAP Output Strategy 2015

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	2003	Sum
Demand Site Inflows and Outflows (Demand Site: Almaden and Guadalupe	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from Guadalupe Creek	6,362.70	385.6	0	3,013.60	1,644.20	3,113.80	2,701.40	5,176.90	6,079.70	2,585.30	0	172,775.80
Inflow from IPR Guadalupe	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 4 almaden valley pipeline	0	1,327.30	0	1,099.10	1,745.50	315.6	0	0	0	0	0	12,164.40
Inflow from cvp 5 almaden valley pl	1,148.90	1,554.70	0	1,146.00	1,774.70	56.1	0	0	0	120.7	0	22,712.70
Outflow to North County Santa Clara Sbb	-7,511.60	-3,267.60	0	-5,258.70	-5,164.40	-3,485.60	-2,701.40	-5,176.90	-6,079.70	-2,706.00	0	-207,652.90
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Kooser) (Acre-foot)	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR Guadalupe	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 4 almaden valley pipeline	0	289.6	0	440	436.8	122.2	0	0	0	196.8	0	9,349.90
Inflow from cvp 5 almaden valley pl	671.3	339.2	0	440	436.8	21.8	0	292.8	576	196.8	0	17,989.70
Outflow to North County Santa Clara Sbb	-671.3	-628.8	0	-880	-873.6	-144	0	-292.8	-576	-393.6	0	-27,339.60
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Los Capitancillos Ponds)	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from Guadalupe Creek	2,141.90	23	2,417.30	1,184.80	597.9	1,132.30	982.3	1,365.50	1,681.70	2,144.00	2,642.80	180,671.60
Inflow from IPR Guadalupe	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 4 almaden valley pipeline	0	482.7	0	599.4	634.7	114.8	0	0	0	162.7	0	7,703.50
Inflow from cvp 5 almaden valley pl	449.6	565.3	0	653.3	645.3	20.4	0	0	0	162.7	0	13,522.60
Outflow to North County Santa Clara Sbb	-2,591.40	-1,071.00	-2,417.30	-2,437.50	-1,878.00	-1,267.50	-982.3	-1,365.50	-1,681.70	-2,469.30	-2,642.80	-201,897.70
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Overfelt Ponds) (Acre-foo	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR Penitencia	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from Penitencia Creek	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 2 SBA pipeline	1,001.60	848	1,460.00	1,460.00	1,313.80	536.6	112	612.7	1,080.00	1,460.00	1,460.00	110,526.60
Outflow to North County Santa Clara Sbb	-1,001.60	-848	-1,460.00	-1,460.00	-1,313.80	-536.6	-112	-612.7	-1,080.00	-1,460.00	-1,460.00	-110,526.60
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Penitencia Ponds) (Acre-	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR Penitencia	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from Penitencia Creek	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 2 SBA pipeline	1,702.60	1,441.60	2,482.00	2,482.00	2,233.50	912.30	190.4	1,041.50	1,836.10	2,482.00	2,482.00	187,895.20
Outflow to North County Santa Clara Sbb	-1,702.60	-1,441.60	-2,482.00	-2,482.00	-2,233.50	-912.30	-190.4	-1,041.50	-1,836.10	-2,482.00	-2,482.00	-187,895.20
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link Flow (Acre-foot)	Transmissio	Transmission I	Transmission	Transmission Li	Transmission L	Transmission	Transmission	Transmission L	Transmission I	Transmission L	Transmission L	Transmission L
Transmission Link from Uvas release to Llagas recharge to Church Pond	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from anderson release to butterfield to Butterfield	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from anderson release to madronne to Madrone Ponds	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 1 to Rinconanda WTP	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 10 to NC IWRP recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 2 to San Tomas Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 3 to Wildcat Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0

WEAP Output Strategy 2015

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	2003	Sum
Transmission Link from lex pl 4 to Saratoga Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 5 to Rodeo Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 6 to Calabazas Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 7 to Regnart Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 8 to Mcclellan Pond recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 9 to Stevens Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local 2 coyote pond recharge to Coyote Pond Rec	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local 2 guad creek to Guadalupe creek	5,610.80	340	7,081.00	4,403.40	1,449.90	2,745.80	2,382.20	4,565.10	5,361.20	6,693.50	7,081.00	512,455.40
Transmission Link from local 2 lower coyote recharge to lower coyote r	1,460.00	338.9	1,245.40	1,460.00	1,128.00	429.5	574.7	856	1,096.70	1,460.00	1,460.00	114,254.80
Transmission Link from local 2 overfelt to Overfelt Ponds	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local 2 pen ponds to Penitencia Ponds	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local 2 upper coyote to NC Upper Coyote Rechar	171.7	34.5	0	135.7	138.2	45.9	64.3	111.3	135.3	57.2	0	4,712.30
Transmission Link from local Chesbro release to recharge to Church Pon	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local Uvas release to recharge to Uvas Recharge	10,117.80	1,787.30	5,959.80	8,213.30	3,832.20	9,556.80	6,995.30	8,713.50	10,117.80	9,258.50	9,286.20	755,866.90
Transmission Link from local alamitos creek to Alamitos Creek recharge	1,106.50	101.7	1,846.70	931.7	447	849.2	736.8	1,042.90	1,405.70	1,521.50	2,094.30	139,959.80
Transmission Link from local anderson 2 coyote ponds to NC Coyote Pon	10,950.00	6.6	9,340.10	10,950.00	3,841.90	320.4	782	5,326.80	6,373.40	10,950.00	10,950.00	807,174.50
Transmission Link from local anderson release to main ave ponds to Mai	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local anderson res to Church Pond and Llagas Re	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local anderson res to Lower Llagas Recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local calabasas creek to Calabazas Creek Recha	1,149.00	236	1,176.20	141	353	200	50	374.4	1,015.20	1,869.00	1,869.00	71,405.30
Transmission Link from local calero creek to Calero Creek recharge	723	43	778.3	567.5	186.8	353.8	307	588.3	689	862.6	912.5	65,384.70
Transmission Link from local guadalupe 1 to Los Capitancillos Ponds	2,141.90	23	2,417.30	1,184.80	597.9	1,132.30	982.3	1,365.50	1,681.70	2,144.00	2,642.80	180,671.60
Transmission Link from local guadaupe 2 to Almaden and Guadalupe Por	6,362.70	385.6	0	3,013.60	1,644.20	3,113.80	2,701.40	5,176.90	6,079.70	2,585.30	0	172,775.80
Transmission Link from local lg creek diversion to Los Gatos Ck rechar	0	333.5	4,981.40	4,718.00	231	496	86.4	496	2,416.00	4,072.40	5,840.00	373,812.20
Transmission Link from local lg pond diversion to Los Gatos Ponds	1,797.10	4,042.80	0	8,302.70	3,917.50	4,365.00	3,388.80	4,360.30	8,498.40	4,462.20	0	374,326.70
Transmission Link from local lower Llagas recharge to Lower Llagas Rec	3,008.70	294.6	4,257.00	1,503.80	383	484.2	1,466.60	4,340.00	6,435.90	3,725.40	6,633.00	401,943.50
Transmission Link from local penitencia creek to Penitencia Creek Rech	1,335.80	164	0	285	334	484	227	410	747	89	0	24,783.60
Transmission Link from local regnart creek to Regnart Creek Recharge	276.7	14	291.2	15	20	4	1	73.3	189.4	451.7	451.7	16,720.10
Transmission Link from local release 2 ford ponds to Ford Pond Recharg	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local release 2 upper coyote to Coyote Upper Re	15,808.30	0	7,282.40	11,689.90	813.10	514.3	0	8,724.90	10,195.90	11,594.90	10,228.70	815,535.20
Transmission Link from local rodeo creek to Rodeo Creek Recharge	67.6	2	107.8	2	3	0	0	16	50	178.7	178.7	4,990.80
Transmission Link from local ross creek recharge to Ross Creek Recharg	863.8	290	983.30	487	421	364	364	517	633	888	888	57,067.30
Transmission Link from local san tomoa creek to San Tomas Creek Rech	691.4	188.5	661.4	299.1	271.5	170.3	233.9	311.8	388.5	771.9	771.9	48,224.20
Transmission Link from local saratoga div to NC IWRP recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local saratogo creek to Saratoga Creek Recharge	2,683.40	648	2,842.40	1,133.00	593	1,203.20	981	958.2	1,846.00	3,512.20	3,512.20	182,377.60
Transmission Link from local silver creek to Silver Creek Recharge	722.4	85	622.7	715	331	93	262	58	103	730	730	52,656.30
Transmission Link from local stevens creek to Stevens Creek Recharge	2,532.30	599.6	3,113.40	3,650.00	2,484.30	1,437.40	1,362.20	2,691.50	3,631.60	3,650.00	3,650.00	271,301.00
Transmission Link from local thompson creek to Thompson Creek Rechai	750.7	47	929	617	362	52	178	32	109	927	927	53,564.60
Transmission Link from local wildcat creek to Wildcat Creek Recharge	443.5	122.5	429.9	194.4	176.5	110.7	152.1	202.7	252.5	484.1	484.1	30,150.40
Sum	70,775.30	10,128.10	56,346.60	64,612.90	23,960.00	28,525.80	24,278.80	51,312.30	69,451.80	72,938.80	70,591.00	5,532,114.80
Demand Reduction Factor	0	0	0	0	0	0	0	0	-0.05	0	0	

WEAP Output Strategy 2020

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	2003	Sum
Groundwater Storage (Acre-foot)	Groundwate	Groundwater S	Groundwater	Groundwater St	Groundwater St	Groundwater	Groundwater	Groundwater S	Groundwater	Groundwater St	Groundwater Storage (Acre-foo	
Coyote Subbasin	23,005.30	14,056.50	24,085.20	24,027.30	21,627.40	10,820.00	0	0	1,180.00	24,128.00	23,305.90	
LlagasSubbasin	73,581.40	119,550.70	143,045.00	134,269.90	126,799.70	121,553.70	116,053.50	118,191.90	121,419.70	141,137.80	141,441.30	
North County Santa Clara Sbb	303,205.00	297,201.60	345,293.80	315,568.20	300,913.70	282,578.20	224,635.00	167,917.90	134,668.70	329,074.30	328,440.60	
Sum	399,791.70	430,808.80	512,424.00	473,865.40	449,340.80	414,951.80	340,688.60	286,109.80	257,268.40	494,340.00	493,187.80	
Reservoir Storage Volume (Acre-foot)	Reservoir St	Reservoir Stor	Reservoir Stor	Reservoir Stora	Reservoir Stora	Reservoir Stor	Reservoir Sto	Reservoir Stora	Reservoir Stor	Reservoir Stora	Reservoir Storage Volume (Acr	
Almaden Reservoir	200	200	200	200	200	200	200	200	200	677	200	
Anderson Reservoir	22,000.00	22,000.00	71,091.60	43,209.20	21,948.30	21,954.30	21,550.40	22,000.00	22,000.00	57,868.60	47,801.70	
Calero Reservoir	1,000.00	769.1	8,900.00	1,000.00	932.6	1,000.00	1,000.00	996.5	2,236.00	6,656.60	8,900.00	
Chesbro Reservoir	500	500	4,586.00	500	436.5	451.7	500	500	1,293.40	4,586.00	2,234.80	
Coyote Reservoir	1,000.00	1,000.00	5,200.00	5,200.00	997.70	993.7	910.4	1,000.00	1,000.00	5,200.00	5,200.00	
Guadalupe Reservoir	200	168.9	1,700.00	200	200	200	200	200	200	1,700.00	279.9	
Lexington Reservoir	2,621.40	4,641.50	16,000.00	8,001.60	5,243.00	3,950.50	3,053.90	5,350.70	7,835.60	16,000.00	13,867.80	
Pacheco Reservoir	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	
Stevens Creek Reservoir	31	181.5	2,368.00	583.6	31	31	31	31	1,609.50	2,368.00	2,368.00	
Uvas Reservoir	2,524.90	2,824.10	5,987.70	500	1,104.10	557.6	500	3,963.60	6,258.00	6,258.00	6,258.00	
cvp caryover	0	0	0	32,214.50	0	0	0	0	0	46,081.80	44,066.70	
cvp overflow not used	0	222,563.10	454,872.00	454,872.00	454,872.00	454,872.00	454,872.00	454,872.00	454,872.00	519,742.70	519,742.70	
semitropic reservoir	246,301.10	283,080.50	345,001.70	305,149.10	286,692.60	272,097.60	236,361.40	199,819.70	167,038.20	316,608.70	314,888.70	
swp caryyover	0	0	0	16,068.10	0	0	0	0	0	20,000.00	20,000.00	
swp overflow not used	0	19,643.60	60,598.70	60,598.70	60,598.70	60,598.70	60,598.70	60,598.70	60,598.70	65,221.60	65,221.60	
Sum	281,378.40	562,572.30	981,505.70	933,296.80	838,256.60	821,907.10	784,777.90	754,532.20	730,141.40	1,073,969.00	1,056,029.70	
Groundwater Natural Recharge (Acre-foot)	Groundwate	Groundwater N	Groundwater	Groundwater Na	Groundwater N	Groundwater	Groundwater	Groundwater N	Groundwater N	Groundwater N	Groundwater N	Groundwater N
Coyote Subbasin	2,535.00	1,326.90	5,335.00	1,838.80	1,544.90	1,101.90	1,457.80	2,541.20	3,273.60	2,141.80	1,990.30	183,393.10
LlagasSubbasin	18,129.30	21,464.50	32,000.40	21,397.30	20,951.50	19,716.10	21,162.80	21,993.90	19,018.50	23,642.90	22,257.30	1,802,330.50
North County Santa Clara Sbb	38,509.30	51,285.70	51,781.40	36,433.90	41,905.40	42,780.40	56,319.30	26,833.40	15,441.40	32,270.70	25,956.40	3,028,956.00
Sum	59,173.60	74,077.10	89,116.80	59,670.00	64,401.80	63,598.40	78,939.90	51,368.50	37,733.50	58,055.40	50,204.00	5,014,679.70
Transmission Link Flow (Acre-foot)	Transmissio	Transmission I	Transmission	Transmission Li	Transmission L	Transmission	Transmission	Transmission L	Transmission I	Transmission L	Transmission L	Transmission L
Transmission Link from lake elsman to sjw west to SJ Water Company	12,613.80	1,362.00	14,943.80	3,997.90	3,455.90	6,503.90	3,720.90	6,431.90	3,455.90	7,405.90	15,947.80	815,457.00
Transmission Link from stanford water to Stanford Moffett Field Ames	823	64	692	187	160	303	174	296	160	681	976	51,733.20
Sum	13,436.80	1,426.00	15,635.80	4,184.90	3,615.90	6,806.90	3,894.90	6,727.90	3,615.90	8,086.90	16,923.80	867,190.30
Transmission Link Flow (Acre-foot)	Transmissio	Transmission I	Transmission	Transmission Li	Transmission L	Transmission	Transmission	Transmission L	Transmission I	Transmission L	Transmission L	Transmission L
Transmission Link from deliver recycled to gilroy to Gilroy Service Ar	478	478	478	478	478	478	478	478	478	478	478	39,194.50
Transmission Link from recycle pa to palo alto to Palo Alto Service Ar	1,055.80	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	69,136.20
Transmission Link from recycle sv to sunnyvale to Sunnyvale Service Ar	1,801.00	1,801.00	1,801.00	1,801.00	1,801.00	1,801.00	1,801.00	1,801.00	1,801.00	1,801.00	1,801.00	147,679.80
Transmission Link from recycled 1 to Llagas Ag	1,122.00	1,122.00	1,122.00	1,122.00	1,122.00	1,122.00	1,122.00	1,122.00	1,122.00	1,122.00	1,122.00	92,003.60
Transmission Link from recycled SB to SJWC to SJ Water Company	2,157.90	2,157.90	2,157.90	2,157.90	2,157.90	2,157.90	2,157.90	2,157.90	2,157.90	2,157.90	2,157.90	176,946.60
Transmission Link from recycled SB to santa clara to Santa Clara Servi	4,316.30	4,316.30	4,316.30	4,316.30	4,316.30	4,316.30	4,316.30	4,316.30	4,316.30	4,316.30	4,316.30	353,933.30
Transmission Link from recycled pa to mountain view to Mountain View S	994.2	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	98,961.30
Transmission Link from recycled sb to milpitas to Milpitas Service Are	1,660.10	1,660.10	1,660.10	1,660.10	1,660.10	1,660.10	1,660.10	1,660.10	1,660.10	1,660.10	1,660.10	136,128.20
Transmission Link from recycled sb to sj muni north to SJ Muni North	5,926.60	6,138.20	6,138.20	6,138.20	6,138.20	6,138.20	6,138.20	6,138.20	6,138.20	6,138.20	6,138.20	503,122.40
Transmission Link from recycled sb to sjMuni edenvale to SJ Muni servi	2,540.00	2,328.30	2,328.30	2,328.30	2,328.30	2,328.30	2,328.30	2,328.30	2,328.30	2,328.30	2,328.30	191,131.50

WEAP Output Strategy 2020

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	2003	Sum
Sum	22,051.70	22,051.70	22,051.70	22,051.70	22,051.70	22,051.70	22,051.70	22,051.70	22,051.70	22,051.70	22,051.70	1,808,237.40
Transmission Link Flow (Acre-foot)	Transmissio	Transmission I	Transmission	Transmission Li	Transmission L	Transmission	Transmission	Transmission L	Transmission I	Transmission L	Transmission L	Transmission L
Transmission Link from hh to PHills to Purisma Hills Service Area	1,842.00	1,842.00	1,842.00	1,842.00	1,842.00	1,481.00	1,481.00	1,281.00	1,481.00	1,842.00	1,842.00	147,756.00
Transmission Link from hh to Sunnyvale to Sunnyvale Service Area	10,158.00	10,158.00	10,158.00	10,158.00	10,158.00	10,945.00	10,945.00	9,458.00	10,945.00	10,158.00	10,158.00	836,278.00
Transmission Link from hh to milpitas service area to Milpitas Service	10,010.00	10,010.00	10,010.00	10,010.00	10,010.00	7,754.00	7,754.00	6,702.00	7,754.00	10,010.00	10,010.00	800,668.00
Transmission Link from hh to moffett ames to Stanford Moffett Field Am	3,445.00	3,445.00	3,445.00	3,445.00	3,445.00	2,539.00	2,539.00	2,193.00	2,539.00	3,445.00	3,445.00	274,550.00
Transmission Link from hh to mountain view to Mountain View Service Ar	12,728.40	12,651.80	12,651.80	12,651.80	12,651.80	10,594.90	10,594.90	9,150.40	10,596.00	12,651.80	12,651.80	1,018,182.50
Transmission Link from hh to palo alto to Palo Alto Service Area	13,324.40	13,503.90	13,503.90	13,503.90	13,503.90	12,337.30	12,337.30	10,709.00	12,105.10	13,503.90	13,503.90	1,094,318.60
Transmission Link from hh to santa clara to Santa Clara Service Area	5,119.00	5,119.00	5,119.00	5,119.00	5,119.00	1,942.00	1,942.00	1,679.00	1,942.00	5,119.00	5,119.00	393,816.00
Transmission Link from hh to sj muni n to SJ Muni North	5,119.00	5,119.00	5,119.00	5,119.00	5,119.00	3,283.00	3,283.00	2,838.00	3,283.00	5,119.00	5,119.00	404,180.00
Sum	61,745.80	61,848.70	61,848.70	61,848.70	61,848.70	50,876.20	50,876.20	44,010.40	50,645.00	61,848.70	61,848.70	4,969,749.10
Transmission Link Flow (Acre-foot)	Transmissio	Transmission I	Transmission	Transmission Li	Transmission L	Transmission	Transmission	Transmission L	Transmission I	Transmission L	Transmission L	Transmission L
Transmission Link from local stevens creek flood release to Tributary	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local uvas flood release to Tributary Inflow 5	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from release from anderson to cvp pl to Anderson PL	0	3,739.20	59,652.30	1,291.20	3,603.60	93.5	159.1	3,321.40	3,895.10	88.2	84	632,407.20
Transmission Link from release from calero to cvp pl to Calero PL rele	0	0	0	922.3	0	0	0	0	248.7	0	0	6,117.60
Transmission Link from release from pacheco to Tributary Inflow 6	0	0	0	0	0	0	0	0	0	0	0	0
Sum	0	3,739.20	59,652.30	2,213.50	3,603.60	93.5	159.1	3,321.40	4,143.80	88.2	84	638,524.70
Streamflow (below node or reach listed) (All Rivers) (Acre-foot)	Streamflow (	Streamflow (be	Streamflow (b	Streamflow (bel	Streamflow (bel	Streamflow (b	Streamflow (b	Streamflow (be	Streamflow (be	Streamflow (be	Streamflow (bel	Streamflow (be
SWP 1 Supply 0 \ Headflow	61,999.10	10,999.80	96,998.60	29,999.60	29,999.60	56,999.20	21,999.70	27,999.60	23,999.60	63,999.10	60,999.10	4,939,927.40
cvp 0 source supply 0 \ Headflow	121,128.40	69,175.90	152,497.80	94,555.50	64,999.00	100,323.60	64,999.00	75,023.60	81,706.60	108,114.60	111,198.50	8,991,576.10
Demand Site Inflows and Outflows (Demand Site: NC Coyote Pond Rechar	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site Ir	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR Coyote	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from Lower Coyote Creek	10,370.70	4,087.30	9,551.10	10,950.00	8,921.10	82.4	782	4,155.40	4,546.80	10,950.00	10,950.00	806,858.80
Inflow from cvp 3 santa clara conduit	579.3	0	0	0	0	107.2	0	0	463.9	0	0	4,975.40
Outflow to North County Santa Clara Sbb	-10,950.00	-4,087.30	-9,551.10	-10,950.00	-8,921.10	-189.6	-782	-4,155.40	-5,010.60	-10,950.00	-10,950.00	-811,834.10
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Ford Pond Recharge) (A	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site Ir	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR Coyote	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from Lower Coyote Creek	0	0	0	0	0	0	0	0	0	0	0	0
Outflow to North County Santa Clara Sbb	0	0	0	0	0	0	0	0	0	0	0	0
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Los Gatos Ponds) (Acre-	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site Ir	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR LG Ponds	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from Los Gatos Creek	1,797.10	3,969.90	0	8,302.70	3,917.50	4,365.00	3,388.80	4,360.30	8,498.40	5,106.50	2,021.20	403,727.00
Inflow from SWP 3 central pipeline	0	2,154.30	0	155.6	3,252.70	330.60	321.8	855.80	0	1,023.30	0	33,682.30
Inflow from cvp 7 central pl	20,668.00	2,348.30	0	506.7	3,245.50	6,862.30	1,126.30	5,055.30	2,753.60	1,391.30	0	130,094.00
Outflow to North County Santa Clara Sbb	-22,465.10	-8,472.50	0	-8,965.00	-10,415.70	-11,557.90	-4,836.90	-10,271.40	-11,252.00	-7,521.10	-2,021.20	-567,503.30
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Recycled Water												1,808,237.40

WEAP Output Strategy 2020

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	2003	Sum
Demand Site Inflows and Outflows (Demand Site: Almaden and Guadalupe	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from Guadalupe Creek	6,362.70	385.6	0	4,316.20	1,644.20	3,113.80	2,701.40	5,951.50	7,656.60	2,684.00	682	205,623.30
Inflow from IPR Guadalupe	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 4 almaden valley pipeline	0	1,554.70	0	642.1	1,525.50	265.7	0	0	0	0	0	8,164.60
Inflow from cvp 5 almaden valley pl	582.7	1,554.70	0	712.1	1,554.70	45.2	0	0	0	0	0	10,992.90
Outflow to North County Santa Clara Sbb	-6,945.40	-3,494.90	0	-5,670.50	-4,724.40	-3,424.70	-2,701.40	-5,951.50	-7,656.60	-2,684.00	-682	-224,780.70
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Kooser) (Acre-foot)	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR Guadalupe	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 4 almaden valley pipeline	0	339.2	0	440	388.8	102.9	0	0	0	195.2	49.6	9,320.50
Inflow from cvp 5 almaden valley pl	477.3	339.2	0	440	388.8	17.5	0	292.8	576	195.2	49.6	18,463.50
Outflow to North County Santa Clara Sbb	-477.3	-678.4	0	-880	-777.6	-120.5	0	-292.8	-576	-390.4	-99.2	-27,784.00
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Los Capitancillos Ponds)	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from Guadalupe Creek	2,141.90	23	2,547.00	1,349.20	597.9	1,132.30	982.3	1,432.80	1,914.50	2,047.40	2,775.40	188,399.90
Inflow from IPR Guadalupe	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 4 almaden valley pipeline	0	565.3	0	595.9	554.7	96.6	0	0	0	173.9	0	7,504.10
Inflow from cvp 5 almaden valley pl	233.5	565.3	0	653.3	565.3	16.4	0	0	0	242.7	0	10,854.10
Outflow to North County Santa Clara Sbb	-2,375.40	-1,153.70	-2,547.00	-2,598.40	-1,718.00	-1,245.40	-982.3	-1,432.80	-1,914.50	-2,464.00	-2,775.40	-206,758.10
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Overfelt Ponds) (Acre-foo	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR Penitencia	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from Penitencia Creek	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 2 SBA pipeline	733.5	1,040.00	1,460.00	1,460.00	1,336.50	635.7	55.8	421.8	798.2	1,460.00	1,460.00	108,700.40
Outflow to North County Santa Clara Sbb	-733.5	-1,040.00	-1,460.00	-1,460.00	-1,336.50	-635.7	-55.8	-421.8	-798.2	-1,460.00	-1,460.00	-108,700.40
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Penitencia Ponds) (Acre-	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR Penitencia	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from Penitencia Creek	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 2 SBA pipeline	1,247.00	1,768.00	2,482.00	2,482.00	2,272.00	1,080.70	94.9	717	1,356.90	2,482.00	2,482.00	184,790.80
Outflow to North County Santa Clara Sbb	-1,247.00	-1,768.00	-2,482.00	-2,482.00	-2,272.00	-1,080.70	-94.9	-717	-1,356.90	-2,482.00	-2,482.00	-184,790.80
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link Flow (Acre-foot)	Transmissio	Transmission I	Transmission	Transmission Li	Transmission L	Transmission	Transmission	Transmission L	Transmission I	Transmission L	Transmission L	Transmission L
Transmission Link from Uvas release to Llagas recharge to Church Pond	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from anderson release to butterfield to Butterfield	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from anderson release to madronne to Madrone Ponds	7,260.80	2,601.40	1,454.00	3,006.00	3,339.70	686.4	207.3	2,337.50	2,959.90	2,919.90	2,919.90	289,931.40
Transmission Link from lex pl 1 to Rinconanda WTP	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 10 to NC IWRP recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 2 to San Tomas Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 3 to Wildcat Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0

WEAP Output Strategy 2020

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	2003	Sum
Transmission Link from lex pl 4 to Saratoga Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 5 to Rodeo Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 6 to Calabazas Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 7 to Regnart Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 8 to Mcclellan Pond recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 9 to Stevens Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local 2 coyote pond recharge to Coyote Pond Rec	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local 2 guad creek to Guadalupe creek	5,610.80	340	7,081.00	5,552.10	1,449.90	2,745.80	2,382.20	5,248.20	6,751.80	7,081.00	7,081.00	530,762.00
Transmission Link from local 2 lower coyote recharge to lower coyote r	1,460.00	1,042.80	1,273.50	1,460.00	1,216.00	429.5	574.7	835.7	1,046.70	1,460.00	1,460.00	115,320.90
Transmission Link from local 2 overfelt to Overfelt Ponds	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local 2 pen ponds to Penitencia Ponds	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local 2 upper coyote to NC Upper Coyote Rechar	171.7	128	0	135.7	147.3	45.9	64.3	108.4	128.5	61.7	12.4	5,160.20
Transmission Link from local Chesbro release to recharge to Church Pon	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local Uvas release to recharge to Uvas Recharge	10,117.80	1,787.30	3,381.80	7,392.80	3,832.20	9,556.80	6,995.30	8,713.50	10,117.80	6,791.40	6,791.40	617,383.40
Transmission Link from local alamitos creek to Alamitos Creek recharge	1,106.50	101.7	1,910.20	949.7	447	849.2	736.8	1,151.40	1,482.20	1,452.00	2,160.70	144,990.50
Transmission Link from local anderson 2 coyote ponds to NC Coyote Pon	10,370.70	4,087.30	9,551.10	10,950.00	8,921.10	82.4	782	4,155.40	4,546.80	10,950.00	10,950.00	806,858.80
Transmission Link from local anderson release to main ave ponds to Mai	2,670.60	767.7	1,069.60	765	850	214.6	76.3	670.5	861.6	2,147.90	2,147.90	157,790.50
Transmission Link from local anderson res to Church Pond and Llagas Re	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local anderson res to Lower Llagas Recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local calabasas creek to Calabazas Creek Recha	1,149.00	236	1,223.30	141	353	200	50	374.4	1,015.20	1,869.00	1,869.00	71,522.80
Transmission Link from local calero creek to Calero Creek recharge	723	43	795.9	715.5	186.8	353.8	307	676.3	870.1	912.5	912.5	67,802.80
Transmission Link from local guadalupe 1 to Los Capitancillos Ponds	2,141.90	23	2,547.00	1,349.20	597.9	1,132.30	982.3	1,432.80	1,914.50	2,047.40	2,775.40	188,399.90
Transmission Link from local guadaupe 2 to Almaden and Guadalupe Por	6,362.70	385.6	0	4,316.20	1,644.20	3,113.80	2,701.40	5,951.50	7,656.60	2,684.00	682	205,623.30
Transmission Link from local lg creek diversion to Los Gatos Ck rechar	0	326.7	5,093.90	4,718.00	231	496	86.4	496	2,416.00	3,837.10	5,840.00	368,504.80
Transmission Link from local lg pond diversion to Los Gatos Ponds	1,797.10	3,969.90	0	8,302.70	3,917.50	4,365.00	3,388.80	4,360.30	8,498.40	5,106.50	2,021.20	403,727.00
Transmission Link from local lower Llagas recharge to Lower Llagas Rec	3,008.70	294.6	2,415.60	1,969.50	383	484.2	1,466.60	4,340.00	6,435.90	4,023.90	4,851.00	341,707.80
Transmission Link from local penitencia creek to Penitencia Creek Rech	1,335.80	164	0	285	334	484	227	410	747	267	13	26,639.60
Transmission Link from local regnart creek to Regnart Creek Recharge	276.7	14	305.8	15	20	4	1	73.3	189.4	451.7	451.7	16,755.40
Transmission Link from local release 2 ford ponds to Ford Pond Recharg	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local release 2 upper coyote to Coyote Upper Re	15,441.50	3,221.30	9,001.10	12,941.30	9,353.50	95.3	0	6,756.60	8,300.10	11,689.90	10,486.10	888,175.90
Transmission Link from local rodeo creek to Rodeo Creek Recharge	67.6	2	122.4	2	3	0	0	16	50	178.7	178.7	5,005.40
Transmission Link from local ross creek recharge to Ross Creek Recharg	863.8	290	1,021.40	487	421	364	364	517	633	888	888	57,158.90
Transmission Link from local san tomoa creek to San Tomas Creek Rech	691.4	188.5	682.5	299.1	271.5	170.3	233.9	311.8	388.5	771.9	771.9	48,270.50
Transmission Link from local saratoga div to NC IWRP recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local saratogo creek to Saratoga Creek Recharge	2,683.40	648	2,942.30	1,133.00	593	1,203.20	981	958.2	1,846.00	3,512.20	3,512.20	182,590.40
Transmission Link from local silver creek to Silver Creek Recharge	722.4	85	636.7	715	331	93	262	58	103	730	730	52,689.70
Transmission Link from local stevens creek to Stevens Creek Recharge	2,532.30	599.6	3,183.70	3,650.00	2,484.30	1,437.40	1,362.20	2,691.50	3,631.60	3,650.00	3,650.00	271,468.20
Transmission Link from local thompson creek to Thompson Creek Rechar	750.7	47	950.1	617	362	52	178	32	109	927	927	53,611.00
Transmission Link from local wildcat creek to Wildcat Creek Recharge	443.5	122.5	443.6	194.4	176.5	110.7	152.1	202.7	252.5	484.1	484.1	30,180.50
Sum	79,760.50	21,516.90	57,086.60	72,062.20	41,866.40	28,769.80	24,562.40	52,879.00	72,952.00	76,894.70	74,567.00	5,948,031.80
Demand Reduction Factor	0	0	0	0	0	0	0	0	-0.05	0	0	

WEAP Output Strategy 2025

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	2003	Sum
Groundwater Storage (Acre-foot)	Groundwate	Groundwater S	Groundwater	Groundwater St	Groundwater S	Groundwater	Groundwater	Groundwater S	Groundwater	Groundwater S	Groundwater Storage (Acre-foo	
Coyote Subbasin	22,111.50	12,201.80	23,916.80	23,173.30	19,603.10	7,883.90	0	38.5	1,178.80	24,024.70	23,121.40	
LlagasSubbasin	73,398.80	119,514.00	143,566.30	133,598.10	126,738.20	121,579.80	116,172.70	118,404.00	121,782.70	142,721.60	140,396.50	
North County Santa Clara Sbb	296,671.20	293,164.30	343,197.30	314,630.60	295,328.80	277,518.60	221,525.00	165,929.20	133,460.60	333,523.10	330,111.30	
Sum	392,181.60	424,880.10	510,680.40	471,402.10	441,670.00	406,982.30	337,697.70	284,371.70	256,422.10	500,269.40	493,629.20	
Reservoir Storage Volume (Acre-foot)	Reservoir St	Reservoir Stor	Reservoir Sto	Reservoir Stora	Reservoir Stora	Reservoir Stor	Reservoir Sto	Reservoir Stora	Reservoir Stor	Reservoir Stora	Reservoir Storage Volume (Acr	
Almaden Reservoir	200	200	200	200	200	200	200	200	200	677	200	
Anderson Reservoir	22,000.00	22,000.00	69,864.00	42,143.70	21,939.30	21,954.30	21,550.40	22,000.00	22,000.00	55,305.60	44,729.10	
Calero Reservoir	1,000.00	744.4	8,900.00	1,000.00	932.6	1,000.00	1,000.00	996.5	2,236.00	6,008.90	8,900.00	
Chesbro Reservoir	500	500	4,586.00	500	436.5	451.7	500	500	1,293.40	4,586.00	2,817.10	
Coyote Reservoir	1,000.00	1,000.00	5,200.00	5,200.00	997.2	993.7	910.4	1,000.00	1,000.00	5,200.00	5,200.00	
Guadalupe Reservoir	200	168.9	1,700.00	200	200	200	200	200	200	1,700.00	279.9	
Lexington Reservoir	2,621.40	4,383.90	16,000.00	7,701.50	5,080.90	3,858.20	3,004.10	5,322.30	7,835.60	15,232.40	13,867.80	
Pacheco Reservoir	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	
Stevens Creek Reservoir	31	181.5	2,368.00	583.6	31	31	31	31	1,609.50	2,368.00	2,368.00	
Uvas Reservoir	2,524.90	2,824.10	5,987.70	1,027.70	1,104.10	557.6	500	3,963.60	6,258.00	6,258.00	6,258.00	
cvp caryover	0	0	0	23,854.10	0	0	0	0	0	38,431.80	37,626.80	
cvp overflow not used	0	169,750.00	385,596.90	385,596.90	385,596.90	385,596.90	385,596.90	385,596.90	385,596.90	433,308.40	433,308.40	
semitropic reservoir	246,169.10	283,310.80	345,001.70	305,522.80	284,092.40	270,724.70	234,988.40	199,405.40	168,326.50	311,746.90	310,990.90	
swp caryyover	0	0	0	15,763.50	0	0	0	0	0	20,000.00	20,000.00	
swp overflow not used	0	9,926.10	45,044.90	45,044.90	45,044.90	45,044.90	45,044.90	45,044.90	45,044.90	49,327.80	49,327.80	
Sum	281,246.40	499,989.80	895,449.20	839,338.60	750,655.80	735,613.00	698,526.20	669,260.70	646,600.80	955,150.80	940,873.80	
Groundwater Natural Recharge (Acre-foot)	Groundwate	Groundwater N	Groundwater	Groundwater Na	Groundwater N	Groundwater	Groundwater	Groundwater N	Groundwater N	Groundwater N	Groundwater N	Groundwater N
Coyote Subbasin	2,535.00	1,326.90	5,335.00	1,838.80	1,544.90	1,101.90	1,457.80	2,541.20	3,273.60	2,141.80	1,990.30	183,393.10
LlagasSubbasin	18,129.30	21,464.50	32,000.40	21,397.30	20,951.50	19,716.10	21,162.80	21,993.90	19,018.50	23,642.90	22,257.30	1,802,330.50
North County Santa Clara Sbb	38,509.30	51,285.70	51,781.40	36,433.90	41,905.40	42,780.40	56,319.30	26,833.40	15,441.40	32,270.70	25,956.40	3,028,956.00
Sum	59,173.60	74,077.10	89,116.80	59,670.00	64,401.80	63,598.40	78,939.90	51,368.50	37,733.50	58,055.40	50,204.00	5,014,679.70
Transmission Link Flow (Acre-foot)	Transmissio	Transmission	Transmission	Transmission Li	Transmission L	Transmission	Transmission	Transmission L	Transmission	Transmission L	Transmission L	Transmission L
Transmission Link from lake elsman to sjw west to SJ Water Company	12,613.80	1,362.00	14,943.80	3,997.90	3,455.90	6,503.90	3,720.90	6,431.90	3,455.90	7,405.90	15,947.80	815,457.00
Transmission Link from stanford water to Stanford Moffett Field Ames	823	64	692	187	160	303	174	296	160	681	976	51,733.20
Sum	13,436.80	1,426.00	15,635.80	4,184.90	3,615.90	6,806.90	3,894.90	6,727.90	3,615.90	8,086.90	16,923.80	867,190.30
Transmission Link Flow (Acre-foot)	Transmissio	Transmission	Transmission	Transmission Li	Transmission L	Transmission	Transmission	Transmission L	Transmission	Transmission L	Transmission L	Transmission L
Transmission Link from deliver recycled to gilroy to Gilroy Service Ar	829	829	829	829	829	829	829	829	829	829	829	67,975.80
Transmission Link from recycle pa to palo alto to Palo Alto Service Ar	1,055.80	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	69,136.20
Transmission Link from recycle sv to sunnyvale to Sunnyvale Service Ar	1,900.00	1,900.00	1,900.00	1,900.00	1,900.00	1,900.00	1,900.00	1,900.00	1,900.00	1,900.00	1,900.00	155,797.70
Transmission Link from recycled 1 to Llagas Ag	1,172.00	1,172.00	1,172.00	1,172.00	1,172.00	1,172.00	1,172.00	1,172.00	1,172.00	1,172.00	1,172.00	96,103.80
Transmission Link from recycled SB to SJWC to SJ Water Company	2,624.20	2,699.30	2,699.30	2,699.30	2,699.30	2,560.70	2,560.70	2,560.70	2,560.70	2,699.30	2,699.30	220,158.60
Transmission Link from recycled SB to santa clara to Santa Clara Servi	4,531.00	4,531.00	4,531.00	4,531.00	4,531.00	4,531.00	4,531.00	4,531.00	4,531.00	4,531.00	4,531.00	371,542.00
Transmission Link from recycled pa to mountain view to Mountain View S	994.2	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	98,961.30
Transmission Link from recycled sb to milpitas to Milpitas Service Are	1,773.00	1,773.00	1,773.00	1,773.00	1,773.00	1,773.00	1,773.00	1,773.00	1,773.00	1,773.00	1,773.00	145,386.00
Transmission Link from recycled sb to sj muni north to SJ Muni North	7,521.00	7,716.80	7,716.80	7,716.80	7,716.80	7,855.40	7,855.40	7,855.40	7,855.40	7,716.80	7,716.80	633,689.50
Transmission Link from recycled sb to sjMuni edenvale to SJ Muni servi	3,250.50	2,979.60	2,979.60	2,979.60	2,979.60	2,979.60	2,979.60	2,979.60	2,979.60	2,979.60	2,979.60	244,600.10

WEAP Output Strategy 2025

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	2003	Sum
Sum	25,650.60	25,650.60	25,650.60	25,650.60	25,650.60	25,650.60	25,650.60	25,650.60	25,650.60	25,650.60	25,650.60	2,103,351.10
Transmission Link Flow (Acre-foot)	Transmissio	Transmission I	Transmission	Transmission Li	Transmission L	Transmission	Transmission	Transmission L	Transmission I	Transmission L	Transmission L	Transmission L
Transmission Link from hh to PHills to Purisma Hills Service Area	1,842.00	1,842.00	1,842.00	1,842.00	1,842.00	1,481.00	1,481.00	1,281.00	1,481.00	1,842.00	1,842.00	147,756.00
Transmission Link from hh to Sunnyvale to Sunnyvale Service Area	10,158.00	10,158.00	10,158.00	10,158.00	10,158.00	10,945.00	10,945.00	9,458.00	10,945.00	10,158.00	10,158.00	836,278.00
Transmission Link from hh to milpitas service area to Milpitas Service	10,010.00	10,010.00	10,010.00	10,010.00	10,010.00	7,754.00	7,754.00	6,702.00	7,754.00	10,010.00	10,010.00	800,668.00
Transmission Link from hh to moffett ames to Stanford Moffett Field Am	3,445.00	3,445.00	3,445.00	3,445.00	3,445.00	2,539.00	2,539.00	2,193.00	2,539.00	3,445.00	3,445.00	274,550.00
Transmission Link from hh to mountain view to Mountain View Service Ar	12,806.80	12,774.70	12,774.70	12,774.70	12,774.70	10,594.90	10,594.90	9,150.40	10,596.00	12,774.70	12,774.70	1,027,231.40
Transmission Link from hh to palo alto to Palo Alto Service Area	13,518.30	13,697.90	13,697.90	13,697.90	13,697.90	12,359.90	12,359.90	10,709.00	12,202.90	13,697.90	13,697.90	1,108,885.50
Transmission Link from hh to santa clara to Santa Clara Service Area	5,119.00	5,119.00	5,119.00	5,119.00	5,119.00	1,942.00	1,942.00	1,679.00	1,942.00	5,119.00	5,119.00	393,816.00
Transmission Link from hh to sj muni n to SJ Muni North	5,119.00	5,119.00	5,119.00	5,119.00	5,119.00	3,283.00	3,283.00	2,838.00	3,283.00	5,119.00	5,119.00	404,180.00
Sum	62,018.20	62,165.60	62,165.60	62,165.60	62,165.60	50,898.80	50,898.80	44,010.40	50,742.80	62,165.60	62,165.60	4,993,364.90
Transmission Link Flow (Acre-foot)	Transmissio	Transmission I	Transmission	Transmission Li	Transmission L	Transmission	Transmission	Transmission L	Transmission I	Transmission L	Transmission L	Transmission L
Transmission Link from local stevens creek flood release to Tributary	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local uvas flood release to Tributary Inflow 5	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from release from anderson to cvp pl to Anderson PL	0	3,972.20	60,427.00	1,524.20	3,900.20	89.3	159.1	3,566.40	4,552.10	321.2	317	612,372.80
Transmission Link from release from calero to cvp pl to Calero PL rele	0	0	0	922.3	0	0	0	0	248.7	0	0	7,273.60
Transmission Link from release from pacheco to Tributary Inflow 6	0	0	0	0	0	0	0	0	0	0	0	0
Sum	0	3,972.20	60,427.00	2,446.50	3,900.20	89.3	159.1	3,566.40	4,800.80	321.2	317	619,646.40
Streamflow (below node or reach listed) (All Rivers) (Acre-foot)	Streamflow (	Streamflow (be	Streamflow (b	Streamflow (bel	Streamflow (bel	Streamflow (b	Streamflow (b	Streamflow (be	Streamflow (be	Streamflow (be	Streamflow (bel	Streamflow (be
SWP 1 Supply 0 \ Headflow	61,999.10	10,999.80	96,998.60	29,999.60	29,999.60	56,999.20	21,999.70	27,999.60	23,999.60	63,999.10	60,999.10	4,939,927.40
cvp 0 source supply 0 \ Headflow	121,128.40	69,175.90	152,497.80	94,555.50	64,999.00	100,323.60	64,999.00	75,023.60	81,706.60	108,114.60	111,198.50	8,991,576.10
Demand Site Inflows and Outflows (Demand Site: NC Coyote Pond Rechar	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site Ir	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR Coyote	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from Lower Coyote Creek	10,233.10	3,616.00	10,213.10	10,950.00	8,156.60	82.4	782	4,155.40	4,330.80	10,950.00	10,950.00	803,277.00
Inflow from cvp 3 santa clara conduit	579.3	0	0	0	0	19.2	0	0	679.9	0	0	4,500.80
Outflow to North County Santa Clara Sbb	-10,812.40	-3,616.00	-10,213.10	-10,950.00	-8,156.60	-101.6	-782	-4,155.40	-5,010.60	-10,950.00	-10,950.00	-807,777.80
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Ford Pond Recharge) (A	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site Ir	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR Coyote	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from Lower Coyote Creek	0	0	0	0	0	0	0	0	0	0	0	0
Outflow to North County Santa Clara Sbb	0	0	0	0	0	0	0	0	0	0	0	0
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Los Gatos Ponds) (Acre-	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site Ir	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR LG Ponds	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from Los Gatos Creek	1,797.10	3,805.40	0	8,773.80	3,806.80	4,295.00	3,376.30	4,338.80	8,470.00	4,603.40	2,021.20	480,652.90
Inflow from SWP 3 central pipeline	0	2,283.10	0	473.8	3,461.70	0	513.6	1,192.80	93.3	1,999.50	0	46,423.50
Inflow from cvp 7 central pl	20,179.70	2,706.60	0	662.9	3,071.60	7,604.00	1,620.50	5,776.90	3,137.00	1,999.50	0	150,215.10
Outflow to North County Santa Clara Sbb	-21,976.90	-8,795.20	0	-9,910.40	-10,340.10	-11,899.00	-5,510.40	-11,308.50	-11,700.40	-8,602.40	-2,021.20	-677,291.60
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Recycled Water												2,103,351.10

WEAP Output Strategy 2025

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	2003	Sum
Demand Site Inflows and Outflows (Demand Site: Almaden and Guadalupe	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from Guadalupe Creek	6,362.70	385.6	0	4,666.90	1,644.20	3,113.80	2,701.40	5,951.50	7,656.60	3,366.00	682	244,827.60
Inflow from IPR Guadalupe	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 4 almaden valley pipeline	0	1,554.70	0	746.9	1,525.50	270.8	0	0	0	0	0	9,296.20
Inflow from cvp 5 almaden valley pl	388.9	1,554.70	0	894.7	1,554.70	167.9	0	0	0	0	0	13,165.10
Outflow to North County Santa Clara Sbb	-6,751.60	-3,494.90	0	-6,308.50	-4,724.40	-3,552.50	-2,701.40	-5,951.50	-7,656.60	-3,366.00	-682	-267,288.90
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Kooser) (Acre-foot)	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR Guadalupe	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 4 almaden valley pipeline	0	339.2	0	486.4	388.8	104.9	0	0	0	244.8	49.6	12,138.50
Inflow from cvp 5 almaden valley pl	288	339.2	0	486.4	388.8	146.6	0	292.8	576	244.8	49.6	22,286.40
Outflow to North County Santa Clara Sbb	-288	-678.4	0	-972.80	-777.6	-251.5	0	-292.8	-576	-489.6	-99.2	-34,424.90
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Los Capitancillos Ponds)	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from Guadalupe Creek	2,141.90	23	2,723.50	1,349.20	597.9	1,132.30	982.3	1,432.80	1,914.50	2,047.40	2,775.40	185,974.00
Inflow from IPR Guadalupe	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 4 almaden valley pipeline	0	565.3	0	595.9	554.7	98.5	0	0	0	245.3	0	8,840.20
Inflow from cvp 5 almaden valley pl	159.5	565.3	0	653.3	565.3	61	0	0	0	245.3	0	13,865.20
Outflow to North County Santa Clara Sbb	-2,301.30	-1,153.70	-2,723.50	-2,598.40	-1,718.00	-1,291.80	-982.3	-1,432.80	-1,914.50	-2,538.00	-2,775.40	-208,679.50
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Overfelt Ponds) (Acre-foo	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR Penitencia	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from Penitencia Creek	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 2 SBA pipeline	624	991	1,460.00	1,460.00	1,173.80	802.4	85.9	542.2	996.50	1,460.00	1,460.00	109,432.70
Outflow to North County Santa Clara Sbb	-624	-991	-1,460.00	-1,460.00	-1,173.80	-802.4	-85.9	-542.2	-996.50	-1,460.00	-1,460.00	-109,432.70
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Penitencia Ponds) (Acre-	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR Penitencia	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from Penitencia Creek	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 2 SBA pipeline	1,060.90	1,684.80	2,482.00	2,482.00	1,995.50	1,364.00	146.1	921.7	1,694.10	2,482.00	2,482.00	186,035.60
Outflow to North County Santa Clara Sbb	-1,060.90	-1,684.80	-2,482.00	-2,482.00	-1,995.50	-1,364.00	-146.1	-921.7	-1,694.10	-2,482.00	-2,482.00	-186,035.60
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link Flow (Acre-foot)	Transmissio	Transmission I	Transmission	Transmission Li	Transmission L	Transmission	Transmission	Transmission L	Transmission I	Transmission L	Transmission L	Transmission L
Transmission Link from Uvas release to Llagas recharge to Church Pond	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from anderson release to butterfield to Butterfield	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from anderson release to madronne to Madrone Ponds	7,246.00	2,439.90	1,454.00	2,672.00	3,223.10	682.5	207.3	2,337.50	2,959.90	2,919.90	2,550.40	287,024.30
Transmission Link from lex pl 1 to Rinconanda WTP	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 10 to NC IWRP recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 2 to San Tomas Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 3 to Wildcat Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0

WEAP Output Strategy 2025

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	2003	Sum
Transmission Link from lex pl 4 to Saratoga Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 5 to Rodeo Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 6 to Calabazas Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 7 to Regnart Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 8 to Mcclellan Pond recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 9 to Stevens Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local 2 coyote pond recharge to Coyote Pond Re	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local 2 guad creek to Guadalupe creek	5,610.80	340	7,081.00	5,298.80	1,449.90	2,745.80	2,382.20	5,248.20	6,751.80	7,081.00	7,081.00	527,760.70
Transmission Link from local 2 lower coyote recharge to lower coyote r	1,460.00	1,042.80	1,361.70	1,460.00	1,092.00	429.5	574.7	835.7	1,046.70	1,460.00	1,460.00	115,239.70
Transmission Link from local 2 overfelt to Overfelt Ponds	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local 2 pen ponds to Penitencia Ponds	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local 2 upper coyote to NC Upper Coyote Rechar	171.7	128	0	144.3	134.9	45.9	64.3	108.4	128.5	74	12.4	6,087.90
Transmission Link from local Chesbro release to recharge to Church Pon	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local Uvas release to recharge to Uvas Recharge	10,117.80	1,787.30	3,381.80	6,791.40	4,354.50	9,556.80	6,995.30	8,713.50	10,117.80	6,791.40	5,932.10	615,336.20
Transmission Link from local alamitos creek to Alamitos Creek recharge	1,106.50	101.7	2,042.60	949.7	447	849.2	736.8	1,151.40	1,482.20	1,452.00	2,160.70	143,830.90
Transmission Link from local anderson 2 coyote ponds to NC Coyote Pon	10,233.10	3,616.00	10,213.10	10,950.00	8,156.60	82.4	782	4,155.40	4,330.80	10,950.00	10,950.00	803,277.00
Transmission Link from local anderson release to main ave ponds to Mai	2,665.20	746.1	1,069.60	680	845	213.2	76.3	670.5	861.6	2,147.90	1,876.10	156,359.10
Transmission Link from local anderson res to Church Pond and Llagas Re	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local anderson res to Lower Llagas Recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local calabasas creek to Calabazas Creek Recha	1,149.00	236	1,355.00	141	353	200	50	374.4	1,015.20	1,869.00	1,869.00	71,589.20
Transmission Link from local calero creek to Calero Creek recharge	723	43	851.1	682.8	186.8	353.8	307	676.3	870.1	912.5	912.5	67,442.40
Transmission Link from local guadalupe 1 to Los Capitancillos Ponds	2,141.90	23	2,723.50	1,349.20	597.9	1,132.30	982.3	1,432.80	1,914.50	2,047.40	2,775.40	185,974.00
Transmission Link from local guadaupe 2 to Almaden and Guadalupe Po	6,362.70	385.6	0	4,666.90	1,644.20	3,113.80	2,701.40	5,951.50	7,656.60	3,366.00	682	244,827.60
Transmission Link from local lg creek diversion to Los Gatos Ck rechar	0	313.1	5,447.00	4,602.00	219.3	496	82	496	2,416.00	3,962.40	5,840.00	353,586.20
Transmission Link from local lg pond diversion to Los Gatos Ponds	1,797.10	3,805.40	0	8,773.80	3,806.80	4,295.00	3,376.30	4,338.80	8,470.00	4,603.40	2,021.20	480,652.90
Transmission Link from local lower Llagas recharge to Lower Llagas Rec	3,008.70	294.6	2,415.60	1,921.30	383	484.2	1,466.60	4,340.00	6,435.90	4,023.90	4,237.20	340,410.70
Transmission Link from local penitencia creek to Penitencia Creek Rech	1,335.80	164	0	532	334	484	227	410	747	211	13	30,012.90
Transmission Link from local regnart creek to Regnart Creek Recharge	276.7	14	345.1	15	20	4	1	73.3	189.4	451.7	451.7	16,796.80
Transmission Link from local release 2 ford ponds to Ford Pond Recharg	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local release 2 upper coyote to Coyote Upper Re	15,599.20	2,455.20	9,971.30	12,996.70	9,234.70	95.3	0	6,602.50	7,869.00	12,822.50	11,456.30	956,566.40
Transmission Link from local rodeo creek to Rodeo Creek Recharge	67.6	2	126	2	3	0	0	16	50	178.7	178.7	5,009.00
Transmission Link from local ross creek recharge to Ross Creek Recharg	863.8	290	1,128.30	487	421	364	364	517	633	888	888	57,235.90
Transmission Link from local san tomoa creek to San Tomas Creek Rech	691.4	188.5	748.7	299.1	271.5	170.3	233.9	311.8	388.5	771.9	771.9	48,321.10
Transmission Link from local saratoga div to NC IWRP recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local saratogo creek to Saratoga Creek Recharge	2,683.40	648	3,255.60	1,133.00	593	1,203.20	981	958.2	1,846.00	3,512.20	3,512.20	182,807.00
Transmission Link from local silver creek to Silver Creek Recharge	722.4	85	680.9	715	331	93	262	58	103	730	730	52,711.20
Transmission Link from local stevens creek to Stevens Creek Recharge	2,532.30	599.6	3,404.40	3,650.00	2,484.30	1,437.40	1,362.20	2,691.50	3,631.60	3,650.00	3,650.00	271,575.30
Transmission Link from local thompson creek to Thompson Creek Recha	750.7	47	1,016.30	617	362	52	178	32	109	927	927	53,661.60
Transmission Link from local wildcat creek to Wildcat Creek Recharge	443.5	122.5	486.6	194.4	176.5	110.7	152.1	202.7	252.5	484.1	484.1	30,213.40
Sum	79,760.50	19,918.30	60,559.20	71,724.40	41,125.00	28,694.50	24,545.50	52,703.40	72,276.60	78,287.70	73,422.80	6,104,309.50
Demand Reduction Factor	0	0	0	0	0	0	0	0	-0.05	0	0	

WEAP Output Strategy 2030

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	2003	Sum
Groundwater Storage (Acre-foot)	Groundwate	Groundwater S	Groundwater	Groundwater St	Groundwater S	Groundwater	Groundwater	Groundwater S	Groundwater	Groundwater S	Groundwater Storage (Acre-foo	
Coyote Subbasin	20,918.00	11,845.70	23,424.70	23,744.20	16,518.80	4,631.10	0	0	1,180.50	23,671.10	22,940.40	
LlagasSubbasin	73,020.40	119,533.70	143,069.90	134,322.80	126,677.30	121,432.90	115,800.90	117,946.20	121,035.30	143,262.40	140,851.30	
North County Santa Clara Sbb	292,645.20	286,974.60	344,518.40	316,193.60	289,214.60	272,160.40	216,066.60	160,485.70	129,188.30	334,892.60	328,409.40	
Sum	386,583.60	418,354.10	511,013.00	474,260.50	432,410.70	398,224.40	331,867.40	278,431.80	251,404.00	501,826.00	492,201.10	
Reservoir Storage Volume (Acre-foot)	Reservoir St	Reservoir Stor	Reservoir Sto	Reservoir Stora	Reservoir Stora	Reservoir Stor	Reservoir Sto	Reservoir Stora	Reservoir Stor	Reservoir Stora	Reservoir Storage Volume (Acr	
Almaden Reservoir	200	200	200	200	200	200	200	200	200	677	200	
Anderson Reservoir	22,000.00	22,000.00	69,864.00	39,821.60	21,939.30	21,954.30	21,550.40	22,000.00	22,000.00	52,084.00	39,913.20	
Calero Reservoir	1,000.00	744.4	8,900.00	1,000.00	932.6	1,000.00	1,000.00	996.5	2,236.00	5,997.30	8,900.00	
Chesbro Reservoir	500	500	4,586.00	500	436.5	451.7	500	500	1,293.40	4,586.00	2,817.10	
Coyote Reservoir	1,000.00	1,000.00	5,200.00	5,200.00	997.2	993.7	910.4	1,000.00	1,000.00	5,200.00	5,200.00	
Guadalupe Reservoir	200	168.9	1,700.00	200	200	200	200	200	200	1,700.00	722.3	
Lexington Reservoir	2,621.40	4,383.90	16,000.00	7,701.50	5,080.90	3,858.20	3,004.10	5,322.30	7,835.60	15,375.60	15,889.00	
Pacheco Reservoir	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	
Stevens Creek Reservoir	31	181.5	2,368.00	583.6	31	31	31	31	1,609.50	2,368.00	2,368.00	
Uvas Reservoir	2,524.90	2,824.10	5,987.70	500	1,104.10	557.6	500	3,963.60	6,258.00	6,258.00	6,258.00	
cvp caryover	0	0	0	15,776.40	0	0	0	0	0	29,462.80	28,812.10	
cvp overflow not used	0	104,260.30	296,369.80	296,369.80	296,369.80	296,369.80	296,369.80	296,369.80	296,369.80	317,216.70	317,216.70	
semitropic reservoir	242,898.90	279,929.00	345,001.70	303,851.20	278,259.90	262,925.00	227,188.80	192,031.80	161,697.50	276,411.10	282,214.80	
swp caryyover	0	0	0	9,468.70	0	0	0	0	0	20,000.00	20,000.00	
swp overflow not used	0	7,947.10	29,559.00	29,559.00	29,559.00	29,559.00	29,559.00	29,559.00	29,559.00	33,361.90	33,361.90	
Sum	277,976.20	429,139.10	790,736.20	715,731.70	640,110.30	623,100.30	586,013.60	557,174.00	535,258.80	775,698.50	768,873.20	
Groundwater Natural Recharge (Acre-foot)	Groundwate	Groundwater N	Groundwater	Groundwater Na	Groundwater N	Groundwater	Groundwater	Groundwater N	Groundwater N	Groundwater N	Groundwater N	Groundwater N
Coyote Subbasin	2,535.00	1,326.90	5,335.00	1,838.80	1,544.90	1,101.90	1,457.80	2,541.20	3,273.60	2,141.80	1,990.30	183,393.10
LlagasSubbasin	18,129.30	21,464.50	32,000.40	21,397.30	20,951.50	19,716.10	21,162.80	21,993.90	19,018.50	23,642.90	22,257.30	1,802,330.50
North County Santa Clara Sbb	38,509.30	51,285.70	51,781.40	36,433.90	41,905.40	42,780.40	56,319.30	26,833.40	15,441.40	32,270.70	25,956.40	3,028,956.00
Sum	59,173.60	74,077.10	89,116.80	59,670.00	64,401.80	63,598.40	78,939.80	51,368.50	37,733.50	58,055.40	50,204.00	5,014,679.70
Transmission Link Flow (Acre-foot)	Transmissio	Transmission	Transmission	Transmission Li	Transmission L	Transmission	Transmission	Transmission L	Transmission	Transmission L	Transmission L	Transmission L
Transmission Link from lake elsman to sjw west to SJ Water Company	12,613.80	1,362.00	14,943.80	3,997.90	3,455.90	6,503.90	3,720.90	6,431.90	3,455.90	7,405.90	15,947.80	815,457.00
Transmission Link from stanford water to Stanford Moffett Field Ames	823	64	692	187	160	303	174	296	160	681	976	51,733.20
Sum	13,436.80	1,426.00	15,635.80	4,184.90	3,615.90	6,806.90	3,894.90	6,727.90	3,615.90	8,086.90	16,923.80	867,190.30
Transmission Link Flow (Acre-foot)	Transmissio	Transmission	Transmission	Transmission Li	Transmission L	Transmission	Transmission	Transmission L	Transmission	Transmission L	Transmission L	Transmission L
Transmission Link from deliver recycled to gilroy to Gilroy Service Ar	1,199.00	1,199.00	1,199.00	1,199.00	1,199.00	1,199.00	1,199.00	1,199.00	1,199.00	1,199.00	1,199.00	98,315.20
Transmission Link from recycle pa to palo alto to Palo Alto Service Ar	1,055.80	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	69,136.20
Transmission Link from recycle sv to sunnyvale to Sunnyvale Service Ar	1,900.00	1,900.00	1,900.00	1,900.00	1,900.00	1,900.00	1,900.00	1,900.00	1,900.00	1,900.00	1,900.00	155,797.70
Transmission Link from recycled 1 to Llagas Ag	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	98,399.90
Transmission Link from recycled SB to SJWC to SJ Water Company	3,174.30	3,338.40	3,338.40	3,338.40	3,338.40	2,950.50	2,950.50	2,950.50	3,035.10	3,338.40	3,338.40	270,639.50
Transmission Link from recycled SB to santa clara to Santa Clara Servi	4,539.80	4,539.80	4,539.80	4,539.80	4,539.80	4,539.80	4,539.80	4,539.80	4,539.80	4,539.80	4,539.80	372,263.60
Transmission Link from recycled pa to mountain view to Mountain View S	994.2	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	98,961.30
Transmission Link from recycled sb to milpitas to Milpitas Service Are	2,042.90	2,042.90	2,042.90	2,042.90	2,042.90	2,042.90	2,042.90	2,042.90	2,042.90	2,042.90	2,042.90	167,518.60
Transmission Link from recycled sb to sj muni north to SJ Muni North	8,992.00	9,157.10	9,157.10	9,157.10	9,157.10	9,544.90	9,544.90	9,544.90	9,460.30	9,157.10	9,157.10	753,659.60
Transmission Link from recycled sb to sjMuni edenvale to SJ Muni servi	3,949.60	3,620.50	3,620.50	3,620.50	3,620.50	3,620.50	3,620.50	3,620.50	3,620.50	3,620.50	3,620.50	297,209.40

WEAP Output Strategy 2030

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	2003	Sum
Sum	29,047.60	29,047.60	29,047.60	29,047.60	29,047.60	29,047.60	29,047.60	29,047.60	29,047.60	29,047.60	29,047.60	2,381,901.00
Transmission Link Flow (Acre-foot)	Transmissio	Transmission I	Transmission	Transmission Li	Transmission L	Transmission	Transmission	Transmission L	Transmission I	Transmission L	Transmission L	Transmission L
Transmission Link from hh to PHills to Purisma Hills Service Area	1,842.00	1,842.00	1,842.00	1,842.00	1,842.00	1,481.00	1,481.00	1,281.00	1,481.00	1,842.00	1,842.00	147,756.00
Transmission Link from hh to Sunnyvale to Sunnyvale Service Area	10,158.00	10,158.00	10,158.00	10,158.00	10,158.00	10,945.00	10,945.00	9,458.00	10,945.00	10,158.00	10,158.00	836,278.00
Transmission Link from hh to milpitas service area to Milpitas Service	10,010.00	10,010.00	10,010.00	10,010.00	10,010.00	7,754.00	7,754.00	6,702.00	7,754.00	10,010.00	10,010.00	800,668.00
Transmission Link from hh to moffett ames to Stanford Moffett Field Am	3,445.00	3,445.00	3,445.00	3,445.00	3,445.00	2,539.00	2,539.00	2,193.00	2,539.00	3,445.00	3,445.00	274,550.00
Transmission Link from hh to mountain view to Mountain View Service Ar	12,840.00	12,828.10	12,828.10	12,828.10	12,828.10	10,594.90	10,594.90	9,150.40	10,594.90	12,828.10	12,828.10	1,031,160.00
Transmission Link from hh to palo alto to Palo Alto Service Area	14,170.60	14,320.50	14,320.50	14,320.50	14,320.50	12,395.00	12,395.00	10,709.00	12,362.10	14,320.50	14,320.50	1,155,323.70
Transmission Link from hh to santa clara to Santa Clara Service Area	5,119.00	5,119.00	5,119.00	5,119.00	5,119.00	1,942.00	1,942.00	1,679.00	1,942.00	5,119.00	5,119.00	393,816.00
Transmission Link from hh to sj muni n to SJ Muni North	5,119.00	5,119.00	5,119.00	5,119.00	5,119.00	3,283.00	3,283.00	2,838.00	3,283.00	5,119.00	5,119.00	404,180.00
Sum	62,703.60	62,841.60	62,841.60	62,841.60	62,841.60	50,933.90	50,933.90	44,010.40	50,901.00	62,841.60	62,841.60	5,043,731.70
Transmission Link Flow (Acre-foot)	Transmissio	Transmission I	Transmission	Transmission Li	Transmission L	Transmission	Transmission	Transmission L	Transmission I	Transmission L	Transmission L	Transmission L
Transmission Link from local stevens creek flood release to Tributary	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local uvas flood release to Tributary Inflow 5	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from release from anderson to cvp pl to Anderson PL	78.5	4,277.50	59,652.30	1,832.20	5,672.20	89.3	159.1	3,892.40	5,353.60	629.2	625	606,200.50
Transmission Link from release from calero to cvp pl to Calero PL rele	0	0	0	922.3	0	0	0	0	248.7	0	0	11,144.20
Transmission Link from release from pacheco to Tributary Inflow 6	0	0	0	0	0	0	0	0	0	0	0	0
Sum	78.5	4,277.50	59,652.30	2,754.50	5,672.20	89.3	159.1	3,892.40	5,602.20	629.2	625	617,344.60
Streamflow (below node or reach listed) (All Rivers) (Acre-foot)	Streamflow (	Streamflow (be	Streamflow (b	Streamflow (bel	Streamflow (bel	Streamflow (b	Streamflow (b	Streamflow (be	Streamflow (be	Streamflow (bel	Streamflow (bel	Streamflow (bel
SWP 1 Supply 0 \ Headflow	61,999.10	10,999.80	96,998.60	29,999.60	29,999.60	56,999.20	21,999.70	27,999.60	23,999.60	63,999.10	60,999.10	4,939,927.40
cvp 0 source supply 0 \ Headflow	121,128.40	69,175.90	152,497.80	94,555.50	64,999.00	100,323.60	64,999.00	75,023.60	81,706.60	108,114.60	111,198.50	8,991,576.10
Demand Site Inflows and Outflows (Demand Site: NC Coyote Pond Rechar	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site Ir	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR Coyote	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from Lower Coyote Creek	10,233.10	2,713.80	9,385.50	10,950.00	6,845.60	82.4	782	4,155.40	4,080.60	10,950.00	10,950.00	795,984.70
Inflow from cvp 3 santa clara conduit	579.3	450	0	0	0	200.6	0	0	930	0	0	4,694.50
Outflow to North County Santa Clara Sbb	-10,812.40	-3,163.80	-9,385.50	-10,950.00	-6,845.60	-283	-782	-4,155.40	-5,010.60	-10,950.00	-10,950.00	-800,679.20
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Ford Pond Recharge) (A	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site Ir	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR Coyote	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from Lower Coyote Creek	0	0	0	0	0	0	0	0	0	0	0	0
Outflow to North County Santa Clara Sbb	0	0	0	0	0	0	0	0	0	0	0	0
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Los Gatos Ponds) (Acre-	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site Ir	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR LG Ponds	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from Los Gatos Creek	1,797.10	3,805.40	0	8,773.80	3,806.80	4,295.00	3,376.30	4,338.80	8,470.00	4,618.60	0.00	474,612.30
Inflow from SWP 3 central pipeline	0	1,504.40	0	473.8	3,512.00	0	1,385.60	1,839.00	366.3	1,999.50	0	47,597.10
Inflow from cvp 7 central pl	20,486.70	2,460.80	0	662.9	2,952.20	7,604.00	883.9	5,481.80	3,062.60	1,999.50	0	147,208.30
Outflow to North County Santa Clara Sbb	-22,283.80	-7,770.70	0	-9,910.40	-10,271.10	-11,899.00	-5,645.80	-11,659.70	-11,899.00	-8,617.50	0.00	-669,417.70
Sum	0	0	0	0	0	0	0	0	0	0	0	0
												2,381,901.00

WEAP Output Strategy 2030

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	2003	Sum
Demand Site Inflows and Outflows (Demand Site: Almaden and Guadalupe	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site Ir	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from Guadalupe Creek	6,362.70	385.6	0	4,666.90	1,644.20	3,113.80	2,701.40	5,951.50	7,656.60	3,366.00	0	243,078.00
Inflow from IPR Guadalupe	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 4 almaden valley pipeline	0	1,327.30	0	746.9	1,070.90	0	0	0	0	0	0	8,086.50
Inflow from cvp 5 almaden valley pl	388.9	1,327.30	0	894.7	1,100.00	0	0	0	0	0	0	12,308.20
Outflow to North County Santa Clara Sbb	-6,751.60	-3,040.20	0	-6,308.50	-3,815.10	-3,113.80	-2,701.40	-5,951.50	-7,656.60	-3,366.00	0	-263,472.70
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Kooser) (Acre-foot)	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site Ir	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR Guadalupe	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 4 almaden valley pipeline	0	289.6	0	486.4	289.6	116.7	0	0	0	244.8	0	11,640.20
Inflow from cvp 5 almaden valley pl	292.8	289.6	0	486.4	289.6	32.1	0	292.8	576	244.8	0	21,219.10
Outflow to North County Santa Clara Sbb	-292.8	-579.2	0	-972.8	-579.2	-148.8	0	-292.8	-576	-489.6	0	-32,859.30
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Los Capitancillos Ponds)	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site Ir	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from Guadalupe Creek	2,141.90	23	2,502.80	1,349.20	597.9	1,132.30	982.3	1,432.80	1,914.50	2,047.40	2,775.40	185,587.00
Inflow from IPR Guadalupe	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 4 almaden valley pipeline	0	482.7	0	595.9	389.4	0	0	0	0	245.3	0	8,380.60
Inflow from cvp 5 almaden valley pl	141.4	482.7	0	653.3	400	0	0	0	0	245.3	0	13,086.50
Outflow to North County Santa Clara Sbb	-2,283.30	-988.3	-2,502.80	-2,598.40	-1,387.30	-1,132.30	-982.3	-1,432.80	-1,914.50	-2,538.00	-2,775.40	-207,054.20
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Overfelt Ponds) (Acre-foo	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site Ir	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR Penitencia	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from Penitencia Creek	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 2 SBA pipeline	595.5	824.4	1,460.00	1,460.00	846.1	1,018.60	79.1	600.6	1,048.20	1,460.00	1,460.00	108,172.00
Outflow to North County Santa Clara Sbb	-595.5	-824.4	-1,460.00	-1,460.00	-846.1	-1,018.60	-79.1	-600.6	-1,048.20	-1,460.00	-1,460.00	-108,172.00
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Penitencia Ponds) (Acre-	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site Ir	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR Penitencia	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from Penitencia Creek	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 2 SBA pipeline	1,012.30	1,401.50	2,482.00	2,482.00	1,438.40	1,731.60	134.5	1,021.00	1,781.90	2,482.00	2,482.00	183,892.40
Outflow to North County Santa Clara Sbb	-1,012.30	-1,401.50	-2,482.00	-2,482.00	-1,438.40	-1,731.60	-134.5	-1,021.00	-1,781.90	-2,482.00	-2,482.00	-183,892.40
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link Flow (Acre-foot)	Transmissio	Transmission l	Transmission	Transmission Li	Transmission L	Transmission	Transmission	Transmission L	Transmission I	Transmission L	Transmission L	Transmission L
Transmission Link from Uvas release to Llagas recharge to Church Pond	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from anderson release to butterfield to Butterfield	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from anderson release to madronne to Madrone Ponds	7,246.00	1,987.80	1,454.00	3,006.00	3,065.80	682.5	207.3	2,337.50	2,959.90	2,919.90	2,550.40	286,906.40
Transmission Link from lex pl 1 to Rinconanda WTP	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 10 to NC IWRP recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 2 to San Tomas Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 3 to Wildcat Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0

WEAP Output Strategy 2030

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	2003	Sum
Transmission Link from lex pl 4 to Saratoga Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 5 to Rodeo Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 6 to Calabazas Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 7 to Regnart Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 8 to Mcclellan Pond recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from lex pl 9 to Stevens Creek Recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local 2 coyote pond recharge to Coyote Pond Rec	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local 2 guad creek to Guadalupe creek	5,610.80	340	7,081.00	5,298.80	1,449.90	2,745.80	2,382.20	5,248.20	6,751.80	7,081.00	7,081.00	528,164.50
Transmission Link from local 2 lower coyote recharge to lower coyote r	1,460.00	620.8	1,251.40	1,460.00	1,092.00	429.5	574.7	835.7	1,043.30	1,460.00	1,460.00	114,512.10
Transmission Link from local 2 overfelt to Overfelt Ponds	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local 2 pen ponds to Penitencia Ponds	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local 2 upper coyote to NC Upper Coyote Rechar	171.7	70.4	0	144.3	134.9	45.9	64.3	108.4	128.2	74	0	5,980.10
Transmission Link from local Chesbro release to recharge to Church Pon	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local Uvas release to recharge to Uvas Recharge	10,117.80	1,787.30	3,381.80	7,392.80	3,832.20	9,556.80	6,995.30	8,713.50	10,117.80	6,791.40	5,932.10	618,103.40
Transmission Link from local alamitos creek to Alamitos Creek recharge	1,106.50	101.7	1,877.10	949.7	447	849.2	736.8	1,151.40	1,482.20	1,452.00	2,160.70	143,616.70
Transmission Link from local anderson 2 coyote ponds to NC Coyote Pon	10,233.10	2,713.80	9,385.50	10,950.00	6,845.60	82.4	782	4,155.40	4,080.60	10,950.00	10,950.00	795,984.70
Transmission Link from local anderson release to main ave ponds to Mai	2,665.20	579.9	1,069.60	765	825	213.2	76.3	670.5	861.6	2,147.90	1,876.10	156,488.40
Transmission Link from local anderson res to Church Pond and Llagas Re	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local anderson res to Lower Llagas Recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local calabasas creek to Calabazas Creek Recha	1,149.00	236	1,170.70	141	353	200	50	374.4	1,015.20	1,869.00	1,869.00	71,205.60
Transmission Link from local calero creek to Calero Creek recharge	723	43	782.1	682.8	186.8	353.8	307	676.3	870.1	912.5	912.5	67,305.60
Transmission Link from local guadalupe 1 to Los Capitancillos Ponds	2,141.90	23	2,502.80	1,349.20	597.9	1,132.30	982.3	1,432.80	1,914.50	2,047.40	2,775.40	185,587.00
Transmission Link from local guadaupe 2 to Almaden and Guadalupe Por	6,362.70	385.6	0	4,666.90	1,644.20	3,113.80	2,701.40	5,951.50	7,656.60	3,366.00	0	243,078.00
Transmission Link from local lg creek diversion to Los Gatos Ck rechar	0	313.1	5,005.60	4,602.00	219.3	496	82	496	2,416.00	4,084.40	5,840.00	351,766.00
Transmission Link from local lg pond diversion to Los Gatos Ponds	1,797.10	3,805.40	0	8,773.80	3,806.80	4,295.00	3,376.30	4,338.80	8,470.00	4,618.60	0.00	474,612.30
Transmission Link from local lower Llagas recharge to Lower Llagas Rec	3,008.70	294.6	2,415.60	1,969.50	383	484.2	1,466.60	4,340.00	6,435.90	4,023.90	4,237.20	340,908.30
Transmission Link from local penitencia creek to Penitencia Creek Rech	1,335.80	164	0	532	334	484	227	410	747	211	0	30,893.10
Transmission Link from local regnart creek to Regnart Creek Recharge	276.7	14	289.5	15	20	4	1	73.3	189.4	451.7	451.7	16,685.80
Transmission Link from local release 2 ford ponds to Ford Pond Recharg	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local release 2 upper coyote to Coyote Upper Re	15,520.70	2,550.40	10,228.70	14,659.90	6,773.20	95.3	0	6,290.10	7,369.90	14,402.50	12,822.50	1,022,814.60
Transmission Link from local rodeo creek to Rodeo Creek Recharge	67.6	2	97.8	2	3	0	0	16	50	178.7	178.7	4,980.90
Transmission Link from local ross creek recharge to Ross Creek Recharg	863.8	290	978.80	487	421	364	364	517	633	888	888	56,935.10
Transmission Link from local san tomoa creek to San Tomas Creek Rech	691.4	188.5	665.9	299.1	271.5	170.3	233.9	311.8	388.5	771.9	771.9	48,110.80
Transmission Link from local saratoga div to NC IWRP recharge	0	267.8	2,365.50	468.2	245	519	405.4	524	1,050.20	2,004.90	2,004.90	104,584.70
Transmission Link from local saratogo creek to Saratoga Creek Recharge	2,683.40	380.2	2,618.40	664.8	348	737	575.6	744.1	1,491.30	2,847.00	2,847.00	148,045.10
Transmission Link from local silver creek to Silver Creek Recharge	722.4	85	625.7	715	331	93	262	58	103	730	730	52,560.00
Transmission Link from local stevens creek to Stevens Creek Recharge	2,532.30	599.6	3,128.50	3,650.00	2,484.30	1,437.40	1,362.20	2,691.50	3,631.60	3,650.00	3,650.00	270,819.60
Transmission Link from local thompson creek to Thompson Creek Rechai	750.7	47	933.5	617	362	52	178	32	109	927	927	53,472.80
Transmission Link from local wildcat creek to Wildcat Creek Recharge	443.5	122.5	432.8	194.4	176.5	110.7	152.1	202.7	252.5	484.1	484.1	30,076.70
Sum	79,682.00	18,013.40	59,742.30	74,456.20	36,652.90	28,747.30	24,545.50	52,701.00	72,219.20	81,344.70	73,400.20	6,224,198.30
Demand Reduction Factor	0	0	0	0	0	0	0	0	-0.05	0	0	

WEAP Output Strategy 2035

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	2003	Sum
Groundwater Storage (Acre-foot)	Groundwate	Groundwater	Groundwater	Groundwater St	Groundwater S	Groundwater	Groundwater	Groundwater S	Groundwater	Groundwater S	Groundwater Storage (Acre-foo	
Coyote Subbasin	19,795.50	9,876.80	22,715.70	22,845.60	15,046.60	1,565.00	0	0	1,182.20	23,008.10	22,616.20	
LlagasSubbasin	72,872.80	119,212.20	142,316.70	133,540.20	126,004.80	120,683.30	115,114.20	117,183.50	120,298.30	142,327.60	139,840.50	
North County Santa Clara Sbb	282,325.00	287,147.10	339,344.80	318,494.00	289,599.70	281,470.00	222,555.70	164,804.10	132,627.30	331,056.00	325,442.00	
Sum	374,993.30	416,236.10	504,377.20	474,879.80	430,651.10	403,718.30	337,669.90	281,987.50	254,107.70	496,391.80	487,898.60	
Reservoir Storage Volume (Acre-foot)	Reservoir St	Reservoir Stor	Reservoir Sto	Reservoir Stora	Reservoir Stora	Reservoir Sto	Reservoir Sto	Reservoir Stor	Reservoir Stor	Reservoir Stora	Reservoir Storage Volume (Acr	
Almaden Reservoir	200	200	200	200	200	200	200	200	200	677	200	
Anderson Reservoir	22,000.00	22,000.00	69,864.00	38,431.50	21,939.30	21,954.30	21,550.40	22,000.00	22,000.00	49,280.30	35,475.70	
Calero Reservoir	1,000.00	730	8,900.00	1,000.00	932.6	1,000.00	1,000.00	996.5	2,236.00	4,457.50	8,000.20	
Chesbro Reservoir	500	500	4,586.00	500	436.5	451.7	500	500	1,293.40	4,586.00	2,817.10	
Coyote Reservoir	1,000.00	1,000.00	5,200.00	5,200.00	997.2	993.7	910.4	1,000.00	1,000.00	5,200.00	5,200.00	
Guadalupe Reservoir	200	168.9	1,700.00	200	200	200	200	200	200	1,700.00	200	
Lexington Reservoir	2,621.40	3,077.30	9,512.30	4,641.50	3,427.30	2,771.30	2,416.80	3,355.40	4,820.50	8,912.40	5,735.20	
Pacheco Reservoir	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	
Stevens Creek Reservoir	31	181.5	2,368.00	583.6	31	31	31	31	1,609.50	2,368.00	2,368.00	
Uvas Reservoir	2,524.90	2,824.10	5,987.70	732.80	1,104.10	557.6	500	3,963.60	6,258.00	6,258.00	6,258.00	
cvp caryover	0	0	0	16,542.00	0	0	0	0	0	39,853.50	38,154.00	
cvp overflow not used	0	231,071.60	479,346.30	479,346.30	479,346.30	479,346.30	479,346.30	479,346.30	479,346.30	576,079.30	576,079.30	
semitropic reservoir	242,532.10	279,929.00	345,001.70	303,600.80	276,656.30	250,234.30	214,498.20	179,935.40	149,411.00	297,424.60	307,387.80	
swp caryyover	0	0	0	9,979.10	0	0	0	0	0	20,000.00	20,000.00	
swp overflow not used	0	9,101.40	47,618.70	47,618.70	47,618.70	47,618.70	47,618.70	47,618.70	47,618.70	52,615.70	52,615.70	
Sum	277,609.40	555,783.80	985,284.70	913,576.30	837,889.40	810,358.90	773,771.80	744,147.00	720,993.40	1,074,412.20	1,065,490.90	
Groundwater Natural Recharge (Acre-foot)	Groundwate	Groundwater	Groundwater	Groundwater N	Groundwater N	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater N	Groundwater N	Groundwater N
Coyote Subbasin	2,535.00	1,326.90	5,335.00	1,838.80	1,544.90	1,101.90	1,457.80	2,541.20	3,273.60	2,141.80	1,990.30	183,393.10
LlagasSubbasin	18,129.30	21,464.50	32,000.40	21,397.30	20,951.50	19,716.10	21,162.70	21,993.90	19,018.50	23,642.90	22,257.30	1,802,330.50
North County Santa Clara Sbb	38,509.30	51,285.70	51,781.40	36,433.90	41,905.40	42,780.40	56,319.30	26,833.40	15,441.40	32,270.70	25,956.40	3,028,956.00
Sum	59,173.60	74,077.10	89,116.80	59,670.00	64,401.80	63,598.40	78,939.80	51,368.50	37,733.50	58,055.40	50,204.00	5,014,679.70
Transmission Link Flow (Acre-foot)	Transmissio	Transmission	Transmission	Transmission L	Transmission L	Transmission	Transmission	Transmission	Transmission	Transmission L	Transmission L	Transmission L
Transmission Link from lake elsman to sjw west to SJ Water Company	12,613.80	1,362.00	14,943.80	3,997.90	3,455.90	6,503.90	3,720.90	6,431.90	3,455.90	7,405.90	15,947.80	815,457.00
Transmission Link from stanford water to Stanford Moffett Field Ames	823	64	692	187	160	303	174	296	160	681	976	51,733.20
Sum	13,436.80	1,426.00	15,635.80	4,184.90	3,615.90	6,806.90	3,894.90	6,727.90	3,615.90	8,086.90	16,923.80	867,190.30
Transmission Link Flow (Acre-foot)	Transmissio	Transmission	Transmission	Transmission L	Transmission L	Transmission	Transmission	Transmission	Transmission	Transmission L	Transmission L	Transmission L
Transmission Link from deliver recycled to gilroy to Gilroy Service Ar	1,600.00	1,600.00	1,600.00	1,600.00	1,600.00	1,600.00	1,600.00	1,600.00	1,600.00	1,600.00	1,600.00	131,196.60
Transmission Link from recycle pa to palo alto to Palo Alto Service Ar	1,055.70	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	840.5	69,136.20
Transmission Link from recycle sv to sunnyvale to Sunnyvale Service Ar	1,900.00	1,900.00	1,900.00	1,900.00	1,900.00	1,900.00	1,900.00	1,900.00	1,900.00	1,900.00	1,900.00	155,797.70
Transmission Link from recycled 1 to Llagas Ag	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	98,400.00
Transmission Link from recycled SB to SJWC to SJ Water Company	3,060.90	3,110.90	3,110.90	3,110.90	3,110.90	3,041.70	3,041.70	3,041.70	3,041.70	3,110.90	3,110.90	254,486.80
Transmission Link from recycled SB to santa clara to Santa Clara Servi	4,680.00	4,680.00	4,680.00	4,680.00	4,680.00	4,680.00	4,680.00	4,680.00	4,680.00	4,680.00	4,680.00	383,760.00
Transmission Link from recycled pa to mountain view to Mountain View	994.2	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	1,209.50	98,961.30
Transmission Link from recycled sb to milpitas to Milpitas Service Are	2,106.00	2,106.00	2,106.00	2,106.00	2,106.00	2,106.00	2,106.00	2,106.00	2,106.00	2,106.00	2,106.00	172,692.00
Transmission Link from recycled sb to sj muni north to SJ Muni North	9,481.10	9,770.50	9,770.50	9,770.50	9,770.50	9,839.70	9,839.70	9,839.70	9,839.70	9,770.50	9,770.50	801,445.10
Transmission Link from recycled sb to sjMuni edenvale to SJ Muni servi	4,071.60	3,732.30	3,732.30	3,732.30	3,732.30	3,732.30	3,732.30	3,732.30	3,732.30	3,732.30	3,732.30	306,387.90
Sum	30,149.60	30,149.60	30,149.60	30,149.60	30,149.60	30,149.60	30,149.60	30,149.60	30,149.60	30,149.60	30,149.60	2,472,263.70

WEAP Output Strategy 2035

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	2003	Sum
Transmission Link Flow (Acre-foot)	Transmissio	Transmission I	Transmission	Transmission L	Transmission L	Transmission	Transmission	Transmission I	Transmission I	Transmission L	Transmission L	Transmission L
Transmission Link from hh to PHills to Purisma Hills Service Area	1,842.00	1,842.00	1,842.00	1,842.00	1,842.00	1,481.00	1,481.00	1,281.00	1,481.00	1,842.00	1,842.00	147,756.00
Transmission Link from hh to Sunnyvale to Sunnyvale Service Area	10,158.00	10,158.00	10,158.00	10,158.00	10,158.00	10,945.00	10,945.00	9,458.00	10,945.00	10,158.00	10,158.00	836,278.00
Transmission Link from hh to milpitas service area to Milpitas Service	10,010.00	10,010.00	10,010.00	10,010.00	10,010.00	7,754.00	7,754.00	6,702.00	7,754.00	10,010.00	10,010.00	800,668.00
Transmission Link from hh to moffett ames to Stanford Moffett Field Am	3,445.00	3,445.00	3,445.00	3,445.00	3,445.00	2,539.00	2,539.00	2,193.00	2,539.00	3,445.00	3,445.00	274,550.00
Transmission Link from hh to mountain view to Mountain View Service A	12,840.00	12,840.00	12,840.00	12,840.00	12,840.00	10,594.90	10,594.90	9,150.40	10,594.90	12,840.00	12,840.00	1,032,030.00
Transmission Link from hh to palo alto to Palo Alto Service Area	14,631.50	14,739.90	14,739.90	14,739.90	14,739.90	12,395.00	12,395.00	10,709.00	12,395.00	14,739.90	14,739.90	1,186,430.80
Transmission Link from hh to santa clara to Santa Clara Service Area	5,119.00	5,119.00	5,119.00	5,119.00	5,119.00	1,942.00	1,942.00	1,679.00	1,942.00	5,119.00	5,119.00	393,816.00
Transmission Link from hh to sj muni n to SJ Muni North	5,119.00	5,119.00	5,119.00	5,119.00	5,119.00	3,283.00	3,283.00	2,838.00	3,283.00	5,119.00	5,119.00	404,180.00
Sum	63,164.50	63,272.90	63,272.90	63,272.90	63,272.90	50,933.90	50,933.90	44,010.40	50,933.90	63,272.90	63,272.90	5,075,708.70
Transmission Link Flow (Acre-foot)	Transmissio	Transmission I	Transmission	Transmission L	Transmission L	Transmission	Transmission	Transmission I	Transmission I	Transmission L	Transmission L	Transmission L
Transmission Link from local stevens creek flood release to Tributary	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local uvas flood release to Tributary Inflow 5	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from release from anderson to cvp pl to Anderson PL	420.5	4,611.70	59,652.30	2,174.20	4,864.20	95.9	159.1	3,022.60	4,244.40	971.2	967	594,337.60
Transmission Link from release from calero to cvp pl to Calero PL rele	0	0	0	922.3	0	0	0	0	248.7	0	0	7,413.00
Transmission Link from release from pacheco to Tributary Inflow 6	0	0	0	0	0	0	0	0	0	0	0	0
Sum	420.5	4,611.70	59,652.30	3,096.50	4,864.20	95.9	159.1	3,022.60	4,493.10	971.2	967	601,750.70
District Surface Water	79,789.30	19,695.70	166,541.10	75,868.80	40,082.50	28,450.40	24,271.80	58,022.60	79,026.40	88,907.50	85,759.60	7,700,733.80
Streamflow (below node or reach listed) (All Rivers) (Acre-foot)	Streamflow (	Streamflow (be	Streamflow (b	Streamflow (bel	Streamflow (be	Streamflow (b	Streamflow (b	Streamflow (be	Streamflow (be	Streamflow (be	Streamflow (be	Streamflow (be
SWP 1 Supply 0 \ Headflow	61,999.10	10,999.80	96,998.60	29,999.60	29,999.60	56,999.20	21,999.70	27,999.60	23,999.60	63,999.10	60,999.10	4,939,927.40
cvp 0 source supply 0 \ Headflow	121,128.40	69,175.90	152,497.80	94,555.50	64,999.00	100,323.60	64,999.00	75,023.60	81,706.60	108,114.60	111,198.50	8,991,576.10
Demand Site Inflows and Outflows (Demand Site: NC Coyote Pond Recha	Demand Sit	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR Coyote	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from Lower Coyote Creek	10,233.10	1,908.80	10,889.70	10,950.00	6,129.00	79.9	782	4,155.40	4,405.10	10,950.00	10,950.00	797,239.20
Inflow from cvp 3 santa clara conduit	291.7	450	0	0	0	0	0	0	930	0	0	5,864.90
Outflow to North County Santa Clara Sbb	-10,524.80	-2,358.80	-10,889.70	-10,950.00	-6,129.00	-79.9	-782	-4,155.40	-5,335.10	-10,950.00	-10,950.00	-803,104.20
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Ford Pond Recharge) (A	Demand Sit	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR Coyote	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from Lower Coyote Creek	0	0	0	0	0	0	0	0	0	0	0	0
Outflow to North County Santa Clara Sbb	0	0	0	0	0	0	0	0	0	0	0	0
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Los Gatos Ponds) (Acre	Demand Sit	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR LG Ponds	0	18,301.10	0	16,602.50	19,999.70	19,999.70	19,999.70	19,999.70	19,999.70	11,506.70	4,986.20	894,671.80
Inflow from Los Gatos Creek	1,797.10	0	0	122.8	0	0	0	322.6	291.4	0	0	19,433.30
Inflow from SWP 3 central pipeline	0	322.6	0	0	400.4	0	770.4	678.9	322.6	0	0	4,749.20
Inflow from cvp 7 central pl	18,592.70	1,560.90	0	3,030.30	2,128.40	3,798.30	0	1,324.10	2,861.70	2,185.30	947.00	151,253.30
Outflow to North County Santa Clara Sbb	-20,389.80	-20,184.60	0	-19,755.60	-22,528.40	-23,798.00	-20,770.10	-22,325.40	-23,475.40	-13,692.00	-5,933.20	-1,070,107.70
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Recycled Water, including Indirect Potable Reuse	30,149.60	48,450.70	30,149.60	46,752.10	50,149.30	50,149.30	50,149.30	50,149.30	50,149.30	41,656.30	35,135.80	3,366,935.50
Demand Site Inflows and Outflows (Demand Site: Almaden and Guadalup	Demand Sit	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from Guadalupe Creek	6,362.70	358.5	0	4,557.40	1,644.20	3,113.80	2,701.40	5,951.50	7,656.60	4,535.50	2,002.00	305,379.60

WEAP Output Strategy 2035

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	2003	Sum
Inflow from IPR Guadalupe	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 4 almaden valley pipeline	193.1	1,100.00	0	834.5	850.9	0	0	0	0	0	0	9,259.80
Inflow from cvp 5 almaden valley pl	195.8	1,100.00	0	894.7	880	0	0	0	0	84.5	0	13,053.30
Outflow to North County Santa Clara Sbb	-6,751.60	-2,558.50	0	-6,286.50	-3,375.10	-3,113.80	-2,701.40	-5,951.50	-7,656.60	-4,620.00	-2,002.00	-327,692.80
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Kooser) (Acre-foot)	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR Guadalupe	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 4 almaden valley pipeline	71.5	240	0	484.8	241.6	148.8	0	0	0	336	145.6	16,649.50
Inflow from cvp 5 almaden valley pl	221.3	240	0	484.8	241.6	0	0	292.8	576	336	145.6	28,092.60
Outflow to North County Santa Clara Sbb	-292.8	-480	0	-969.60	-483.2	-148.8	0	-292.8	-576	-672	-291.2	-44,742.10
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Los Capitancillos Ponds	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from Guadalupe Creek	2,141.90	23	2,903.90	1,216.50	597.9	1,132.30	982.3	1,432.80	1,914.50	2,047.40	2,564.70	183,010.80
Inflow from IPR Guadalupe	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 4 almaden valley pipeline	70.2	400	0	595.9	309.4	0	0	0	0	256.6	80	10,550.40
Inflow from cvp 5 almaden valley pl	71.2	400	0	653.3	320	0	0	0	0	325.3	80	15,868.30
Outflow to North County Santa Clara Sbb	-2,283.30	-823	-2,903.90	-2,465.70	-1,227.30	-1,132.30	-982.3	-1,432.80	-1,914.50	-2,629.30	-2,724.70	-209,429.50
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Overfelt Ponds) (Acre-fo	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR Penitencia	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from Penitencia Creek	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 2 SBA pipeline	362	787.2	1,460.00	1,460.00	688.7	1,120.60	54.6	395.7	615.8	1,460.00	1,460.00	107,824.70
Outflow to North County Santa Clara Sbb	-362	-787.2	-1,460.00	-1,460.00	-688.7	-1,120.60	-54.6	-395.7	-615.8	-1,460.00	-1,460.00	-107,824.70
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Demand Site Inflows and Outflows (Demand Site: Penitencia Ponds) (Acre	Demand Site	Demand Site I	Demand Site	Demand Site In	Demand Site In	Demand Site I	Demand Site	Demand Site I	Demand Site I	Demand Site In	Demand Site In	Demand Site In
Inflow from IPR Penitencia	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from Penitencia Creek	0	0	0	0	0	0	0	0	0	0	0	0
Inflow from SWP 2 SBA pipeline	615.4	1,338.30	2,482.00	2,482.00	1,170.70	1,905.00	92.8	672.7	1,046.80	2,482.00	2,482.00	183,302.00
Outflow to North County Santa Clara Sbb	-615.4	-1,338.30	-2,482.00	-2,482.00	-1,170.70	-1,905.00	-92.8	-672.7	-1,046.80	-2,482.00	-2,482.00	-183,302.00
Sum	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link Flow (Acre-foot)	Transmissio	Transmission I	Transmission	Transmission L	Transmission L	Transmission	Transmission	Transmission L	Transmission I	Transmission L	Transmission L	Transmission L
Transmission Link from Uvas release to Llagas recharge to Church Ponc	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from anderson release to butterfield to Butterfield	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from anderson release to madronne to Madrone Pond	7,246.00	1,375.60	1,454.00	3,006.00	2,875.70	679.5	207.3	2,337.50	2,959.90	2,919.90	2,550.40	285,001.40
Transmission Link from lex pl 1 to Rinconanda WTP	0	3,139.40	41,494.20	10,101.70	2,775.50	4,404.70	3,025.50	5,332.10	11,243.40	11,125.60	13,947.90	1,374,880.30
Transmission Link from lex pl 10 to NC IWRP recharge	0	0	136.4	0	0	0	0	0	0	249.3	0	7,304.20
Transmission Link from lex pl 2 to San Tomas Creek Recharge	0	0	6	0	0	0	0	0	0	54.2	0	1,319.70
Transmission Link from lex pl 3 to Wildcat Creek Recharge	0	0	3.9	0	0	0	0	0	0	35.2	0	946
Transmission Link from lex pl 4 to Saratoga Creek Recharge	0	0	222.2	0	0	0	0	0	0	353.9	0	11,191.00
Transmission Link from lex pl 5 to Rodeo Creek Recharge	0	0	459.9	0	0	0	0	68.9	47.7	80.9	0	11,609.70
Transmission Link from lex pl 6 to Calabazas Creek Recharge	0	0	374.4	0	0	0	0	0	0	106.4	0	9,854.80

WEAP Output Strategy 2035

	1922	1977	1983	1987	1988	1989	1990	1991	1992	2002	2003	Sum
Transmission Link from lex pl 7 to Regnart Creek Recharge	0	0	149.3	0	0	0	0	0	0	49.3	0	3,981.50
Transmission Link from lex pl 8 to Mcclellan Pond recharge	0	0	1,017.60	0	0	0	0	148.8	134.4	148.8	0	27,143.20
Transmission Link from lex pl 9 to Stevens Creek Recharge	0	0	20.1	0	0	0	0	0	0	0	0	640.1
Transmission Link from local 2 coyote pond recharge to Coyote Pond Re	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local 2 guad creek to Guadalupe creek	5,610.80	358.8	7,081.00	5,221.60	1,449.90	2,745.80	2,382.20	5,248.20	6,751.80	7,006.50	7,081.00	524,840.80
Transmission Link from local 2 lower coyote recharge to lower coyote r	1,460.00	438.3	1,452.00	1,460.00	1,073.10	429.5	574.7	835.7	1,014.50	1,460.00	1,460.00	115,048.30
Transmission Link from local 2 overfelt to Overfelt Ponds	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local 2 pen ponds to Penitencia Ponds	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local 2 upper coyote to NC Upper Coyote Recha	171.7	33.4	0	146.9	132.2	45.9	64.3	108.4	125.3	99.8	44.4	7,380.30
Transmission Link from local Chesbro release to recharge to Church Por	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local Uvas release to recharge to Uvas Recharge	10,117.80	1,787.30	3,381.80	7,650.70	4,059.60	9,556.80	6,995.30	8,713.50	10,117.80	6,791.40	5,932.10	620,335.80
Transmission Link from local alamitos creek to Alamitos Creek recharge	1,106.50	107.6	2,177.90	949.7	447	849.2	736.8	1,151.40	1,482.20	1,428.90	2,067.20	142,997.20
Transmission Link from local anderson 2 coyote ponds to NC Coyote Por	10,233.10	1,908.80	10,889.70	10,950.00	6,129.00	79.9	782	4,155.40	4,405.10	10,950.00	10,950.00	797,239.20
Transmission Link from local anderson release to main ave ponds to Mai	2,665.20	392.5	1,069.60	765	792.9	212.1	76.3	670.5	861.6	2,147.90	1,876.10	155,867.30
Transmission Link from local anderson res to Church Pond and Llagas R	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local anderson res to Lower Llagas Recharge	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local calabasas creek to Calabazas Creek Recha	1,149.00	236	1,474.40	141	353	200	50	374.4	1,015.20	1,869.00	1,869.00	72,166.60
Transmission Link from local calero creek to Calero Creek recharge	723	45.4	907.5	672.9	186.8	353.8	307	676.3	870.1	902.9	912.5	67,398.30
Transmission Link from local guadalupe 1 to Los Capitancillos Ponds	2,141.90	23	2,903.90	1,216.50	597.9	1,132.30	982.3	1,432.80	1,914.50	2,047.40	2,564.70	183,010.80
Transmission Link from local guadaupe 2 to Almaden and Guadalupe Po	6,362.70	358.5	0	4,557.40	1,644.20	3,113.80	2,701.40	5,951.50	7,656.60	4,535.50	2,002.00	305,379.60
Transmission Link from local lg creek diversion to Los Gatos Ck rechar	0	0	3,359.80	0	0	0	0	496	448	496	0	89,453.10
Transmission Link from local lg pond diversion to Los Gatos Ponds	1,797.10	0	0	122.8	0	0	0	322.6	291.4	0	0	19,433.30
Transmission Link from local lower Llagas recharge to Lower Llagas Rec	3,008.70	294.6	2,415.60	2,502.00	383	484.2	1,466.60	4,340.00	6,435.90	4,023.90	4,237.20	342,978.40
Transmission Link from local penitencia creek to Penitencia Creek Rech	1,335.80	133	0	427	334	484	227	410	747	609	81	36,633.60
Transmission Link from local regnart creek to Regnart Creek Recharge	276.7	14	366.3	15	20	4	1	73.3	189.4	451.7	451.7	16,934.80
Transmission Link from local release 2 ford ponds to Ford Pond Recharg	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Link from local release 2 upper coyote to Coyote Upper Re	15,207.60	2,455.20	10,228.70	15,768.70	7,322.00	95.3	0	7,055.40	8,112.40	15,511.30	14,283.70	1,091,587.00
Transmission Link from local rodeo creek to Rodeo Creek Recharge	67.6	2	126	2	3	0	0	16	50	178.7	178.7	5,041.90
Transmission Link from local ross creek recharge to Ross Creek Rechar	863.8	290	1,234.00	487	421	364	364	517	633	888	888	57,702.00
Transmission Link from local san tomoa creek to San Tomas Creek Rech	691.4	188.5	816.3	299.1	271.5	170.3	233.9	311.8	388.5	771.9	771.9	48,640.60
Transmission Link from local saratoga div to NC IWRP recharge	0	267.8	2,365.50	468.2	245	519	405.4	524	1,050.20	2,004.90	2,004.90	104,584.70
Transmission Link from local saratogo creek to Saratoga Creek Recharg	2,683.40	380.2	3,330.40	664.8	348	737	575.6	744.1	1,491.30	2,847.00	2,847.00	150,374.60
Transmission Link from local silver creek to Silver Creek Recharge	722.4	85	726	715	331	93	262	58	103	730	730	52,943.20
Transmission Link from local stevens creek to Stevens Creek Recharge	2,532.30	599.6	3,629.90	3,650.00	2,484.30	1,437.40	1,362.20	2,691.50	3,631.60	3,650.00	3,650.00	272,735.70
Transmission Link from local thompson creek to Thompson Creek Recha	750.7	47	1,084.00	617	362	52	178	32	109	927	927	53,982.90
Transmission Link from local wildcat creek to Wildcat Creek Recharge	443.5	122.5	530.6	194.4	176.5	110.7	152.1	202.7	252.5	484.1	484.1	30,421.10
Sum	79,368.80	15,084.00	106,888.80	72,772.30	35,218.30	28,354.50	24,112.70	55,000.00	74,533.30	87,936.30	84,792.60	7,098,982.90
Demand Reduction Factor	0	0	0	0	0	0	0	0	-0.05	0	0	
Total Supply	428,841.30	287,098.10	614,212.60	374,303.80	316,521.00	357,261.70	295,188.40	313,301.90	327,165.20	432,092.70	423,493.70	35,956,751.30
Demand with Demand Reduction Factor	422920	422920	422920	422920	422920	422920	422920	422920	401774	422920	422920	
Reserves	0	135821.9	0	48616.2	106399	65658.3	127731.6	109618.1	74608.8	0	0	

APPENDIX H

Baseline System Capacity Analysis

BASELINE SYSTEM CAPACITY ANALYSIS
FOR THE
WATER SUPPLY AND INFRASTRUCTURE MASTER PLAN (WSIMP)

April 2011

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1. Objective

The objective of the capacity analysis described in this Technical Memorandum is to identify any future infrastructure capacity constraints for the Water Supply and Infrastructure Master Plan (WSIMP). For this analysis, future demands were applied to the current raw and treated water distribution systems, with the addition of infrastructure improvements currently included in the District's Capital Improvement Program.

2. Overview

In order to determine whether the current water treatment and distribution system has enough capacity to meet future demands, staff analyzed projected maximum daily demands on the system through 2035. The maximum daily demands (MDDs) were calculated from output from the District's Water Evaluation and Planning (WEAP) model. For the treated water system, the MDDs were based on requirements in the District's treated water contracts. For the raw water system, the MDDs were based on standard peak flow requirements.

Once future maximum daily demands were determined, staff compared those demands to current water treatment plant capacity. Subsequently, staff analyzed raw and treated water pipeline capacity using the H20Net model, which performs hydraulic modeling. This memo presents the findings from the water treatment plant capacity analysis and hydraulic modeling.

3. Future Maximum Daily Demand

Future Demand Data

The demand data used in this analysis was taken from the demand study from the District's 2010 Urban Water Management Plan (UWMP) and is based on demand projections from water retailers. The demand projections are for total water use in a retailer service area. The WEAP model calculates the amount of demand met with SFPUC, treated water, groundwater, and recycled water supplies.

The WEAP model assumes that the proportion of treated water and groundwater use by retailer service area is the same proportion as today. In other words, future demands are allocated between treated and groundwater the same as they are today. (i.e., if there is currently a 50/50 treated - groundwater split, that split holds true for future calculations). SFPUC supplies are a set number for the year and are used to offset demand on the groundwater basin. A change in SFPUC supplies does not impact treated water demand. For example, if SFPUC supplies decrease, groundwater pumping increases and treated water demand stays the same.

The WEAP model provides demand data in five year increments for future years (2015, 2020, 2025, 2030, and 2035) at each raw water turnout and each retailer service area.

Treated Water Contract Requirements

The District's treated water retailer contracts provide level of service requirements for the treated water system. The contract requirements provide guidelines for calculating future MDDs for the treated water system.

Every three years, the District's treated water retailers provide a delivery schedule with annual contract amounts for a three-year period. The treated water contracts require the District to provide the following:

- The total annual amount of treated water in the approved delivery schedule
- In each month, at least 15 percent of the total annual amount in the approved delivery schedule
- For an aggregate of 72 hours in any month, an instantaneous flow rate equivalent to 205 percent of the current annual amount in the approved delivery schedule expressed as an equivalent uniform flow rate over the full year (i.e., convert annual amount to MGD * 205%)
- The District may limit the maximum flow rate to 180% of the current annual amount in the approved delivery schedule expressed as an equivalent uniform flow rate over the full year (i.e., convert annual amount to MGD * 180%) with reasonable prior notice.

Although the District is required to provide a 205% instantaneous flow rate, the District may limit the maximum flow rate to 180% with reasonable prior notice. So for long-term planning purposes, the 180% governs.

Future Maximum Daily Demand Calculations

Treated System:

For the treated water system, MDD was calculated two ways. First, staff calculated MDD based on the contract requirement to provide 180% of the current annual amount expressed as an equivalent uniform flow rate over the full year. Second, staff calculated MDD based on the contract requirement to provide 15% of the total annual amount in the approved delivery schedule in each month.

Staff calculated MDD for future years in five year increments (2015, 2020, 2025, 2030, and 2035). Staff calculated MDD at the system level (East and West) for water treatment plant capacity analysis, and at the turnout level for hydraulic modeling analysis. The calculations are shown below.

1. MDD = 1.8 * Average Daily Demand (ADD)
   ADD = Total Annual Demand/365
   Total Annual Demand = Sum of Monthly Demand from WEAP output for Jan – December

2. MDD = 0.15*Total Annual Demand
   Total Annual Demand = Sum of Monthly Demand from WEAP output for Jan – December

The second method of calculating MDD resulted in higher demands. As such, this method was used to determine future MDDs.

Raw System:
For the raw water system, MDD was calculated based on a peaking factor of 1.5, which is a standard peaking factor for calculating maximum daily demand from monthly demands. Again, staff calculated MDD for future years in five year increments. The calculations are shown below.

MDD = 1.5 * Average Daily Demand (ADD)
ADD = Total Annual Demand/365
Total Annual Demand = Sum of Monthly Demand from WEAP output for Jan – December

4. Treatment Plant Capacity Analysis

The District's H20Net models do not account for treatment plant capacity limitations. Since the District uses steady state modeling, the treatment plants are modeled as constant head reservoirs, and treatment plant capacity is not factored into the models. As such, staff analyzed water treatment plant capacity separately.

The west side has one water treatment plant, Rinconada Water Treatment Plant (RWTP), with a capacity of 80 MGD. RWTP is being expanded to 100 MGD in the next five to ten years. In addition, the District recently added the Campbell Well Field to the west treated water system, which can provide 1.5 – 4 MGD depending on the time of year and groundwater conditions. On the east side, total treated water capacity is 140 MGD, with Santa Teresa Water Treatment Plant (STWTP) providing 100 MGD and Penitencia Water Treatment Plant (PWTP) providing 40 MGD.

As stated in Section 3, staff calculated the future MDDs for the east and west systems based on the treated water contract requirement to provide 15% of the total annual amount in the approved delivery schedule in each month. To analyze water treatment plant capacity, staff compared these future MDDs to current and planned water treatment plant capacity. Detailed results are presented in Attachment 1 and a summary of the results is presented in Table 1. below.

Table 1. Future MDDs vs. Current Capacity (MGD)

	Current/PlannedCapacity	Future MDD				
		2015	2020	2025	2030	2035
West	100	74	82	82	81	81
East	140	124	126	133	142	153

The west system has sufficient capacity to meet future MDDs over the planning horizon; however, the current east system does not have enough capacity to provide future MDDs starting in 2030 as indicated by the red numbers in Table 1. The system needs an additional 13 MGD of treated water capacity in the future to meet peak flow requirements in the current retailer contracts.

5. Pipeline Capacity Analysis

H20Net Model Overview

The District currently uses MWH Soft's H2ONet software for hydraulic modeling. The District has three separate models for its water supply system.

- Raw Water System Model: Water supply sources (San Luis Reservoir, South Bay Aqueduct Terminal Tank, Anderson and Calero Reservoirs) to the water treatment plants (WTPs)
- East Treated Water System Model: Santa Teresa Water Treatment Plant (STWTP) and Penitencia Water Treatment Plant (PWTP) to the retailer turnouts on the Snell, East & Milpitas pipelines, and the SFPUC Intertie
- West Treated Water System Model: Rinconada Water Treatment Plant (RWTP) to the retailer turnouts on the West Pipeline and Santa Clara, Sunnyvale, Mountain View & Campbell Distributaries.

Together, these three models simulate the District's raw and treated water supply system. The models include the District's pipelines, major valves, surface water reservoirs, storage tanks, and pump stations. The District uses the H2ONet models for steady state modeling, which shows a 'snapshot' in time of the water supply system and allows staff to determine system hydraulic and capacity constraints.

Model Update and Calibration

The District originally developed and calibrated the models in 2002. In September 2010, staff updated and re-calibrated the models for use in the WSIMP. To update the models, staff checked the physical attributes, such as elevation, length, and diameter, of the pipelines, valves and tanks in the model against as-built drawings. Staff also interviewed treated and raw water system operators about typical system operations and clearwell and tank operating levels. Some errors that were found and corrected include the following:

- The RWTP reservoir outlet pipe had changed since 2002. It was re-constructed in the RWTP Back-up Disinfection project and RWTP Plant Water System project.
- Approximately 5 miles of the Santa Clara Distributary was not included in the original model.
- The STWTP outlet pipe and STWTP tunnel lengths were not accurate in the original model.
- Some elevations were slightly off what is shown in as-built drawings.

To calibrate the models, staff gathered real-time system data from the District's SCADA data historian, the Operations Data Management System (ODMS). Staff compiled data from ODMS for turnout flow, turnout HGL, tank level, valve position, and valve HGL. Staff ran the models using the real-time SCADA data values for turnout flow, valve position, and tank level. Staff then checked the model output for turnout and valve HGLs against the real system HGLs. The modeled HGLs and real system HGLs matched for the raw water and west treated water system models, and the models did not require any adjustments for calibration. The east treated water system model required some changes to the PWTP mod-valve.

Model Limitations

Location of Future Demand

Projected future demand is taken from output from the District's WEAP model. The WEAP model does not identify specific areas of increasing demand within retailer zones. Future demand projections are provided at the retailer level, but not by turnout within retailer service areas. For the WSIMP hydraulic modeling, staff estimated the demand at each turnout as a percentage of the total retailer demand. The percentages were derived from historical data for deliveries to one retailer turnout divided by total deliveries to the retailer. This percentage based calculation of turnout demands is sufficient for baseline system modeling as it provides enough information to determine if there are capacity constraints within the existing system. For modeling future projects and infrastructure, more refined turnout demands may be required.

Diurnal Demand Curves

Although H20Net modeling software is capable of modeling diurnal demand curves over an extended period (extended period simulation), the District does not have projected diurnal demand curves for the raw or treated water system turnouts. Diurnal demand curves account for peak hourly or daily flows. Since these curves are not available, staff calculated MDD for WSIMP modeling using the calculations shown in section three.

Scenarios

In reality, there are millions of possible operational scenarios for the District's system. Each minor change in valve position, reservoir or tank level, or turnout flow could constitute a new scenario. It is not feasible to model every possible operational scenario. Consequently, staff modeled the worst-case scenario for normal operations to determine infrastructure capacity and hydraulic constraints. In this analysis, the worst-case scenario for normal operations is defined as the maximum daily turnout demands with the lowest tank or reservoir levels.

Risk

In addition to normal operations, several risks or unforeseen conditions such as an outage of the South Bay Aqueduct (SBA) or San Luis Reservoir 'low point' could result in additional operational scenarios. These scenarios are called 'risk scenarios' as they are not normal occurrences.

One risk scenario was included in this analysis. RWTP typically receives a blend of state water from the SBA and federal water from the Almaden Valley Pipeline. Due to the pending expansion of RWTP, staff analyzed if the raw water system can deliver 100% South Bay Aqueduct (SBA) water to the expanded RWTP (100MGD of SBA water to RWTP). The results of this analysis are presented below. Additional risk scenarios may be modeled during evaluation of specific projects and portfolios to determine the performance of those portfolios under several risks.

San Tomas (Campbell) Well Field

The District recently added a well field to its west treated water distribution system. The well field is expected to supply 1.5 – 5 MGD depending on groundwater conditions. It is currently intended as a back-up source of water for the west system rather than a long term water supply. As such, it was not included in the baseline system analysis.

Raw Water Model

For future years, the highest projected demands for the raw water system from the WEAP model output were in the year 2035. As such, staff modeled a scenario for MDD for 2035. Staff calculated MDD for the raw system using the method described in section three.

One additional constraint was considered in the raw water system analysis. The District's contract with the US Bureau of Reclamation for the operation of the San Felipe Division system limits the District to taking a flow of up to 330 cfs (212 MGD). Future maximum daily demand on the San Felipe system cannot exceed 212 MGD.

The demands and results from the H20Net raw water model analysis are provided in Attachment 2. No system capacity constraints were identified for normal system operations, and the contractual constraint of 212 MGD from the San Felipe Division is not exceeded. However, to meet future maximum daily demands, the pumps at Coyote Pump Station had to be running. As future demands increase, the District will likely have to run the Coyote (and possibly Vasona) pumps more often.

Raw Water Model Risk Scenario

As mentioned above, staff analyzed the current raw water system to see if it can deliver 100 MGD of SBA water to the expanded RWTP. The analysis was done by hand calculations rather than with the H20Net model. Results are shown in Attachment 2. The current system is not capable of delivering 100 MGD to RWTP with the required hydraulic head for the new treatment plant processes, even with all four pumps at Vasona pump station running. The Vasona pumps would need to be upgraded to provide another 40 feet of lift in order to operate the system in this manner. However, delivery of 100% SBA water to RWTP does not represent typical operations and would only occur under atypical circumstances such as an Almaden Valley Pipeline outage.

East Treated Water Model

For future years, the highest projected demands for the east treated water system were in the year 2035. Staff modeled a scenario for 2035 MDD. The modeled demands and results are provided in Attachment 3. No pipeline capacity constraints were identified. The District pipelines are capable of carrying flows for projected future MDDs through 2035, although the existing treatment plants cannot provide these flows as shown in the treatment plant capacity analysis in section four.

West Treated Water Model
For future years, the highest projected demands for the west treated water were in the year 2025; however, demands for the west system remain relatively flat over the planning horizon and never reach full planned treatment plant capacity. As such, staff ran a scenario for the maximum planned treatment plant output of 100 MGD.

Staff estimated the demand to each retailer as a percentage of the total system capacity. The percentages for each retailer were derived from historical data for deliveries to each retailer divided by total west side deliveries. Staff estimated the demand to each turnout as a percentage of the total retailer demand. The percentages were derived from historical data for deliveries to one retailer turnout divided by total deliveries to the retailer.

The modeled demands and results are provided in Attachment 4. No pipeline capacity constraints were identified. The District pipelines are capable of carrying the maximum flow planned for RWTP.

6. Conclusions and Recommendations

Staff analyzed the water treatment plants and pipelines to identify constraints for existing infrastructure under future demands for the Water Supply and Infrastructure Master Plan (WSIMP). A summary of constraints for each system (raw, east, west) is provided below.

Raw Water System

Hydraulic modeling did not show any infrastructure constraints for the existing raw water system under future demands for typical operations. However, the system is not capable of delivering 100 MGD of SBA water to RWTP unless the Vasona pump station is upgraded. Additionally, as future demands increase, the District may have to run the Coyote (and possibly Vasona) pumps more often.

East Treated Water System

The east side treated water system does not have sufficient treatment plant capacity to meet maximum daily demands through 2035. Maximum daily demands are projected to exceed treatment plant capacity starting in 2030. The east treated water pipelines, however, have sufficient capacity to carry projected future maximum daily flows through 2035.

West Treated Water System

The west side treated water system has sufficient existing and planned treatment plant capacity to meet maximum daily demands through 2035. Additionally, the west treated water pipelines are capable of carrying the maximum flow planned for RWTP.

Recommendations

1. Monitor east side demands and consider operational or contractual solutions before investing in new infrastructure to expand plant capacity in the east treated water system to meet contract flow requirements.

2. Consider increasing the capacity of the Vasona pump station. Although not required for typical operations, an increased capacity would allow the District to deliver 100% SBA water to the newly expanded RWTP.

3. Be prepared to run the Vasona and Coyote pumps more often in the future. Running the pumps more often will add operational and maintenance costs. The pumps will use more power and require more frequent maintenance.

4. Perform surge analyses of District pipelines to further ensure system reliability throughout the future. Additionally, continue to inspect and maintain District pipelines so they continue to be available and reliable for future use.

ATTACHMENT 1 – TREATMENT PLANT CAPACITY ANALYSIS DATA AND RESULTS

	Average Daily Demand by Month																
West - RWTP	**J**	**F**	**M**	**A**	**M**	**J**	**J**	**A**	**S**	**O**	**N**	**D**	**Total Annual (MG)**	**Average Daily by Year**	**Max Daily (1)**	**15% Total Annual**	**Max Daily (2)**
2015	28.1	26.3	29.7	37.2	46.0	53.5	56.2	52.9	52.7	43.5	35.0	26.1	14,850	41	73	2227	74
2020	31.1	29.1	32.9	41.2	51.0	59.3	62.2	58.5	58.4	48.2	38.8	28.9	16,441	45	81	2466	82
2025	31.1	29.0	32.8	41.1	50.8	59.1	62.1	58.4	58.2	48.0	38.7	28.9	16,400	45	81	2460	82
2030	30.8	28.8	32.5	40.8	50.4	58.6	61.6	57.9	57.7	47.7	38.4	28.6	16,267	45	80	2440	81
2035	30.5	28.5	32.2	40.3	49.9	58.0	60.9	57.2	57.1	47.1	37.9	33.6	16,251	45	80	2438	81

(1) MDD = 1.8 * Average Daily Demand (ADD)
(2) MDD = 0.15*Total Annual Demand

		Average Daily Demand by Month																
East - PWTP & STWTP		J	F	M	A	M	J	J	A	S	O	N	D	Total Annual (MG)	Average Daily by Year	Max Daily (1)	15% Total Annual	Max Daily (2)
2015	**PWTP**	15.4	14.4	16.3	20.4	25.2	29.4	30.8	29.0	28.9	23.9	19.2	14.3	8,146	22	40	1222	41
	STWTP	31.4	29.4	33.2	41.6	51.5	59.8	62.8	59.1	58.9	48.6	39.1	29.2	16,600	45	82	2490	83
	TOTAL	46.9	43.8	49.5	62.1	76.7	89.2	93.7	88.1	87.8	72.5	58.3	43.6	24,746	68	122	3712	124
2020	**PWTP**	16.1	15.0	16.9	21.2	26.3	30.5	32.1	30.1	30.1	24.8	20.0	14.9	8,472	23	42	1271	42
	STWTP	31.8	29.7	33.6	42.2	52.1	60.6	63.6	59.8	59.7	49.2	39.6	29.6	16,807	46	83	2521	84
	TOTAL	47.9	44.7	50.6	63.4	78.4	91.1	95.7	90.0	89.7	74.1	59.6	44.5	25,279	69	125	3792	126
2025	**PWTP**	17.3	16.1	18.2	22.9	28.3	32.9	34.5	32.5	32.4	26.7	21.5	16.1	9,124	25	45	1369	46
	STWTP	33.1	30.9	35.0	43.9	54.2	63.0	66.2	62.2	62.1	51.2	41.2	30.8	17,488	48	86	2623	87
	TOTAL	50.4	47.1	53.2	66.7	82.5	95.9	100.8	94.7	94.5	78.0	62.7	46.8	26,612	73	131	3992	133
2030	**PWTP**	17.9	16.7	18.9	23.7	29.3	34.1	35.8	33.6	33.5	27.7	22.3	16.6	9,450	26	47	1417	47
	STWTP	36.0	33.6	38.0	47.7	58.9	68.5	72.0	67.6	67.5	55.7	44.8	33.5	19,005	52	94	2851	95
	TOTAL	53.9	50.3	56.9	71.4	88.2	102.5	107.7	101.3	101.0	83.4	67.1	50.1	28,454	78	140	4268	142
2035	**PWTP**	18.5	17.3	19.6	24.5	30.3	35.2	37.0	34.8	34.7	28.6	23.0	20.4	9,876	27	49	1481	49
	STWTP	39.3	36.7	41.5	52.1	64.4	74.8	78.6	73.9	73.7	60.8	48.9	36.5	20,758	57	102	3114	104
	TOTAL	57.8	54.0	61.1	76.6	94.7	110.0	115.6	108.7	108.4	89.5	72.0	57.0	30,634	84	151	4595	153

(1) MDD = 1.8 * Average Daily Demand (ADD)

(2) MDD = 0.15*Total Annual Demand

ATTACHMENT 2 – RAW WATER MODEL DATA AND RESULTS

	2035 WEAP MDD (MGD)	ELEVATION (FT)	HGL (FT)	PRESSURE (PSI)
ALAMITOSCR	1.00	205.8	489.7	123
BAILEY18	0.00	514	606.6	40.1
BAILEY30	0.00	514	606.6	40.1
BIF	50.00	261.4	599.5	146.5
CALABAZAS	1.60	315.3	452	59.2
CALEROCR	0.00	385.4	463	33.6
GUADCREEK	0.20	252.6	483.3	100
HALFRD	0.00	392.7	502.8	47.7
KIRK	5.10	238.3	466.6	98.9
KOOSERPOND	1.60	245.4	481.4	102.2
LGATVPS	0.00	242.8	313.1	30.5
LOWERLG	2.80	168	467.8	129.9
MADRONE	2.80	392.7	502.7	47.7
MAINAVE	1.30	380	504.3	53.9
MCLELLAN	1.60	329	451.3	53
PAGE	2.60	233	466.7	101.3
PENPERC	3.90	225	473.5	107.7
PWTP	40.10	437.9	473.6	15.5
REGNART	0.60	345	451.4	46.1
RODEO	0.90	308	452.5	62.6
ROSSCREEK	1.20	272.5	472.9	86.8
RWTP	77.80	420.2	459.8	17.2
SANPEDRO	3.70	345.6	510.3	71.4
SANTOMAS	0.40	269	460.9	83.2
SARATOGA	2.50	312	453.7	61.4
SMITHCR	0.00	243.5	461	94.2
STEVCREEK	0.10	288	451.3	70.7
STWTP	86.00	449.2	497.4	20.9
WILDCAT	0.30	264	460.5	85.1

2 Coyote Pumps are ON

100 MGD of SBA Water to RWTP:

HGL at SBA = 485 ft

Headloss from SBA tank to RWTP = 150 ft (approx – I was able to use the model to get this number)

Available Head (Gravity Only) = 485-150 = 335 ft

Required Head = 429 ft

Difference = 429-335 = 94 ft

Need the Vasona pumps to add 94 ft. of head. From reviewing the Vasona pump curves, the pumps can only add 55 ft. of head, so we are about 40 ft. short.

Small pumps (2 ea): Capacity = 11,000 gpm (16 MGD), 55 ft head

So the 2 pumps together can lift about 32 MGD 55 ft

Large pumps (2 ea): Capacity = 25,000 gpm (36 MGD), 55 ft head

So the 2 large pumps together can lift about 72 MGD 55 ft

All four pumps can lift 104 MGD 55 ft. < 94 ft. needed

ATTACHMENT 3 – EAST TREATED WATER MODEL DATA AND RESULTS

Turnout	Demand (MGD)	Elevation (ft)	HGL (ft)	Pressure (psi)
ABORN	18.44	191.56	389.39	85.72
ALUM_ROCK	10.53	137.93	390.18	109.3
DUTARD	1.05	405	416	4.77
GREYSTONE	31.59	400	424	10.4
HOSTETTER	26.33	110.58	376.33	115.15
MABURY	3.16	186.43	392.12	89.13
MILPITAS	12.78	10.05	372.48	157.04
NORWOOD	0.71	135.93	389.32	109.79
OCALA	11.58	126.18	389.3	114.01
PINOS	10.53	157.23	398.79	104.67
SILVER_CREEK	16.31	152	390.65	103.41
SKYWAY	10.53	153.38	396.88	105.51

ATTACHMENT 4 – WEST TREATED WATER MODEL DATA AND RESULTS

Turnout	Demand (MGD)	Elevation (ft)	HGL (ft)	Pressure (psi)
BARRANCA	0.77	254.84	351.9	42.06
CAMPBELL	8.44	186.47	363.56	76.73
CONGRESS	9.93	318.1	434.42	50.4
COVINGTON	3.09	168	334.29	72.05
COX	21.84	324.16	430.94	46.27
FARNDON	5.87	249.5	352.53	44.64
GRANGER	1.85	232	345.38	49.13
MANN	8.93	300.2	375.35	32.56
MOUNTAINVIEW	2.84	156	333.95	77.11
PORTLAND	0.00	193.86	338.18	62.53
RAINBOW	0.5	344.2	420.52	33.07
SANTACLARA	10.59	160.78	390.74	99.64
SUNNYVALE	21.49	286.56	343.9	24.85
VALCO	3.86	160.78	391.11	99.8

APPENDIX I

Projects Eliminated from Further Consideration

Water Supply and Infrastructure Master Plan
Projects Eliminated from Further Consideration

Project Title/Brief Description	**Reason Not Being Evaluated at This Time**	**Notes**
Other demand management programs, including increased agricultural and municipal/industrial conservation and conservation through land use policies	Technical or Environmental Infeasibility	Though not feasible at this time, the District will continue to evaluate and monitor advances in these types of conservation programs. Additional information is provided in Chapter 8.
Rainwater harvesting	High Cost/Low Benefit	Though not cost effective at this time, the District will continue to evaluate and monitor advances in these types of conservation programs. Additional information is provided in Chapter 8.
Stormwater capture and re-use	Project or Opportunity Not Defined	Though not defined at this time, the District will continue to look for opportunities for stormwater recharge re-use projects. One potential opportunity exists if a Canoas Creek flood protection project is feasible. Additional information is provided in Chapter 8.
Local desalination	Technical or Environmental Infeasibility	Due to environmental constraints south of the Dumbarton Bridge, environmental permitting would be extremely difficult.
Shallow Groundwater Reuse	Technical or Environmental Infeasibility	Several options for shallow groundwater reuse were identified in a shallow groundwater reuse feasibility study in 2009. At this time, shallow groundwater reuse would compete with existing recycled water use.
Local groundwater demineralization	Technical or Environmental Infeasibility	Groundwater pumping from deeper aquifers near the Bay would induce groundwater gradient changes, drawing Bay water upgradient into basin, which would create an adverse groundwater condition. Yield from shallow brackish groundwater near the Bay is likely to be very limited. Feasibility studies and field investigations would be necessary to determine whether groundwater demineralization is viable.

Water Supply and Infrastructure Master Plan
Projects Eliminated from Further Consideration

Project Title/Brief Description	Reason Not Being Evaluated at This Time	Notes
Put artesian water south of Gilroy to beneficial use	Technical or Environmental Infeasibility	Artesian conditions south of Gilroy are due to confined aquifer conditions. As conditions change in groundwater pumping and recharge, artesian conditions also change. It is unclear whether artesian conditions will occur in the future with anticipated future increases in groundwater pumping by the City of Gilroy. If artesian conditions persist in the future, this option could be re-evaluated.
Bay Delta Conservation Plan (BDCP) and other Delta Improvements	Does not Provide New Supply/Capacity	A project to maintain the District's imported water supplies is part of the baseline assumptions for the Water Master Plan. See Chapters 2 and 8 for additional information.
Intertie w/ Alameda County Water District (Calaveras)	Project or Opportunity Not Defined	No specific project was identified. Additionally, the primary benefit would be to Milpitas/East side distribution system, which already has an intertie with San Francisco Public Utilities Commission.
South Bay Aqueduct (SBA)-Hetch-Hetchy Intertie	Technical or Environmental Infeasibility	Originator of this project is unknown. An SBA-Hetch-Hetchy connection is not feasible as this would be connecting raw and treated water systems. Additionally, neither facility is owned by the District.
Los Vaqueros Expansion	Project or Opportunity Not Defined	Contra Costa Water District (CCWD) does not have specific partnering information available at this time; however, the Los Vaqueros Expansion could provide an opportunity for a Dry Year Option agreement, which is included in the Water Master Plan Recommended Strategy. Though not defined at this time, the District will continue to evaluate and monitor opportunities for participation in the program. Additional information is provided in Chapter 8.

Water Supply and Infrastructure Master Plan
Projects Eliminated from Further Consideration

Project Title/Brief Description	**Reason Not Being Evaluated at This Time**	**Notes**
Other Banking Programs	Project or Opportunity Not Defined	No opportunities have been identified at this time.
Almaden-Calero tie-in to Almaden Pipeline	Does not Provide New Supply/Capacity	This project would not have long term water supply benefits. It was developed as a concept for a "work around" for the operating restriction at Calero Reservoir.
Calero reoperation - improve hydraulics of outlet system	Does not Provide New Supply/Capacity	This project provides added operational flexibility to the raw water system, but on its own does not increase supply.
Pipeline connecting Uvas & Calero reservoirs	High Cost/Low Benefit	This project provides the same benefits as a pipeline connecting Uvas Reservoir to the Santa Clara Conduit (SCC), but is much more expensive. Additionally, the Uvas-SCC connection has the added benefit of being able to use the water in the south county ponds or Anderson Reservoir.
San Luis Reservoir Low Point Project Combination Alternative, including recharge and wells	Does not Provide New Supply/Capacity	This project maintains reliability of the District’s existing CVP supplies, but does not increase yield.
Westside reoperations to increase processing capacity	N/A	This concept is being evaluated as a portfolio rather than a project.
Chesbro & Uvas dam seismic upgrades	Does not Provide New Supply/Capacity	These reservoirs do not currently have operating restrictions. As such, a seismic upgrade would not increase reservoir capacity.

Water Supply and Infrastructure Master Plan
Projects Eliminated from Further Consideration

Project Title/Brief Description	Reason Not Being Evaluated at This Time	Notes
Stevens Creek dam seismic upgrades	Does not Provide New Supply/ Capacity	This reservoir does not currently have operating restrictions. As such, a seismic upgrade would not increase reservoir capacity.
Remove Almaden or Guadalupe Dam	Does not Provide New Supply/Capacity	Removing a dam decreases local water supply. There is a potential environmental benefit , but costs are very high.
Increase Penitencia Water Treatment Plant (PWTP) capacity	Technical or Environmental Infeasibility	PWTP is located on an active landslide. Historically, the plant responds well to landslide movements and there is minimal impact to the plant. However, because of the landslide, recent plant upgrades constructed under the Water Treatment Improvement Project Stage 2 (WTIP2) did not include provisions for increasing plant capacity in the future. In addition, the plant is located near the active Hayward fault, which presents a high danger to the site as it is unknown how an earthquake on the Hayward fault would adversely affect landslide movement.
SFPUC connection to Bay Division pipeline upstream of Milpitas turnout	Does not Provide New Supply/Capacity	District already has an east side intertie with SFPUC upstream of the Milpitas turnout. There is no need for a second connection in the same location. This project would not provide new supply.
Additional treated water storage to meet increased demands	High Cost/Low Benefit	This project provides the same benefits as additional wells, but is twice as expensive. Both projects provide additional treated water system capacity distributed along the system; however, this project is less reliable than well fields in earthquakes or disasters.
Direct Potable Reuse	Technical or Environmental Infeasibility	Current regulations do not allow transmission of advanced treated recycled water directly to raw water pipelines. Though not allowed at this time, the District will continue to monitor for advancements in regulations.

APPENDIX J

Project Cost/Benefit Evaluation

and

Information Sheets

***READ THIS FIRST:** Data presented in this Appendix was compiled in 2010-2011. Information may have changed since that time, particularly cost estimates. The benefits identified in the summary table override the benefits in the project information sheets as some project information sheets have not been updated to reflect more recent analyses. Costs in the summary table are present value calculations of all costs over the life of the project, and will not match costs in the project information sheets.*

			Ensure Supply Reliability			Ensure Drinking Water Quality			Minimize Cost Impacts	Maximize Implementation Potential		Maximize Water Conservation	Protect the Natural Environment		Ensure Community Benefits				
Category	Project Title	Discussion	Meet service area demands	Maintain a diverse water supply	Maximize flexibility to respond to change	Maximize surface water treatability	Meet drinking water regulations	Protect groundwater quality	Minimize District lifecycle costs	Maximize District influence over supplies and operations	Minimize implementation complexities and barriers	Maximize Water Conservation	Provide benefits to watersheds, streams, and natural resources	Reduce greenhouse gas emissions	Provide flood protection and recreational benefits	Ensure equitable distribution of benefits	2012 Present Value Costs[1]	Average Annual Yield[2] (AF)	PV Cost per Annual AF[3]
Conservation	Graywater System Rebates	Reduce demands for residential irrigation by providing rebates for the installation of graywater systems.	Will be evaluated at the portfolio level	*					Will be evaluated at the portfolio level			*	*	*			$ 3,000,000	300	$ 200
Recycled Water	Morgan Hill Treatment	Treats and distributes recycled water in Morgan Hill, which currently does not have access to recycled water, for irrigation and industrial purposes.		*	*											*	$ 29,000,000	300	$ 96,700
	Pipeline to Morgan Hill	Deliver recycled water from Gilroy to Morgan Hill for irrigation and industrial purposes.		*	*					*						*	$ 40,000,000	770	$ 51,900
	Hecker Pass Irrigation	Extend the existing recycled water distribution system in Gilroy.		*						*	*						$ 6,000,000	450	$ 13,300
	Recycled Water Regional Connector	Connect South Bay Water Recycling and Sunnyvale recycled water systems.		*	*			*		*	*						$ 2,300,000	300	$ 7,700
Indirect Potable Reuse	Coyote Creek Ponds	Provide a new, all-weather supply of water for groundwater recharge.		*	*			*		*							$ 84,000,000	5,000	$ 16,800
	Los Gatos Ponds			*	*			*		*							$ 339,000,000	15,300	$ 22,200
	Penitencia Ponds			*	*			*		*							$ 66,000,000	3,000	$ 22,000
	Guadalupe Ponds			*	*			*		*							$ 212,000,000	11,000	$ 19,300
Groundwater Recharge	Guadalupe Watershed	Add capacity for existing and new supplies and helps maintain groundwater storage.			*			*		*	*						$ 76,000,000	8,000	$ 9,500
	Saratoga Creek				*			*		*	*						$ 14,000,000	3,300	$ 4,200
	Butterfield Channel	Adds capacity for using existing and new supplies, though operational groundwater storage capacity may be a limitation.						*		*			*				$ 8,000,000	4,000	$ 2,000
	Upper Madrone							*		*	*		*				$ 5,000,000	1,700	$ 2,900
	Church Avenue Diversion Repair	Would increase the ability to conduct recharge in the Llagas Subbasin.			*			*		*							$ 5,000,000	4,800	$ 1,000
Imported Water	Dry Year Option Agreements	Add dry year supplies, though they may be subject to pumping restrictions in the Delta and/or other conveyance issues.			*					*	*						$ 71,000,000	5,100	$ 13,900
	Exchange Contracts				*					*	*						$ 3,000,000	1,600	$ 1,900
	Imported Water Contract Purchase	Increase contracted State Water Project and/or Central Valley Project agricultural supplies; would be subject to pumping restrictions in the Delta and/or other conveyance issues.			*					*	*						$ 36,000,000	6,000	$ 6,000
Regional Desalination	Regional Desalination Project	Would provide treated water during critical dry years.			*		*			*							$ 72,000,000	1,400	$ 51,400
Reoperations	Uvas Reservoir Pipeline	Provde the ability to put excess wet weather flows into the raw water system for recharge or delivery to treatment plants. Lexington Pipeline could be required as part of a Los Gatos IPR project.			*	*				*					*		$ 38,000,000	12,400	$ 3,100
	Stevens Creek Reservoir tie-in to Stevens Creek pipeline				*	*				*				*	*		$ 9,000,000	4,700	$ 1,900
	Lexington Reservoir Pipeline				*					*							$ 10,000,000	1,500	$ 6,700
	Lexington Reservoir Exchange Agreement	SJWC would process lexington water at its Montevina facilites to free up District system processing capacity.								*	*						$ -	5,000	$ -
	West Side Intertie with SFPUC	Provides reliability during outages; may have conjunctive use benefits.			*					*	*		*				$ 206,000,000	-	n/a
	Imported Water Reoperations	Sell some of the District's storage in Semitropic Water Bank to offset costs of other projects or ongoing operations.								*	*		*				$ (75,000,000)	-	n/a

			Ensure Supply Reliability			**Ensure Drinking Water Quality**			**Minimize Cost Impacts**	**Maximize Implementation Potential**		**Maximize Water Conservation**	**Protect the Natural Environment**		**Ensure Community Benefits**				
Category	**Project Title**	**Discussion**	Meet service area demands	Maintain a diverse water supply	Maximize flexibility to respond to change	Maximize surface water treatability	Meet drinking water regulations	Protect groundwater quality	Minimize District lifecycle costs	Maximize District influence over supplies and operations	Minimize implementation complexities and barriers	Maximize Water Conservation	Provide benefits to watersheds, streams, and natural resources	Reduce greenhouse gas emissions	Provide flood protection and recreational benefits	Ensure equitable distribution of benefits	**2012 Present Value Costs[1]**	**Average Annual Yield[2] (AF)**	**PV Cost per Annual AF[3]**
Reservoir Expansion	Anderson Reservoir Expansion	Add storage capacity, which helps mitigate the effects of droughts, climate change, water quality concerns, and interruptions in imported water deliveries. May also enable capture of additional local supplies.	Will be evaluated at the portfolio level	*	*	*			Will be evaluated at the portfolio level	*				*	*		$ 281,000,000	8,500	$ 33,100
	Calero Reservoir Expansion			*	*	*				*				*	*		$ 122,000,000	200	$ 610,000
	Pacheco Reservoir Expansion			*	*	*											$ 642,000,000	17,000	$ 37,800
	Uvas Reservoir Expansion			*	*	*				*				*	*		$ 192,000,000	6,150	$ 31,200
Treated Water	South County WTP	Maximizes conjunctive use of the groundwater basin by providing an alternative delivery system when the groundwater basin is "full."			*		*			*							$ 21,000,000	-	n/a
	West Side Package WTPs	Provides additional capacity to use existing supplies in the west side system, and provides redundancy in the west treated water system.					*			*							$ 33,000,000	-	n/a
Capacity Improvements	Additional Wells	Enables the District to meet flow requirements specified in treated water contracts, as well as providing some post-disaster reliability.			*					*			*				$ 28,000,000	-	n/a
	Increase STWTP capacity	Enables the District to meet flow requirements specified in treated water contracts.					*			*							$ 77,000,000	-	n/a
	Revise Treated Water Contracts	Enables the District to meet flow requirements specified in treated water contracts. Adds supply reliability for south county.			*					*			*			*	$ 479,000	-	n/a

Notes:

[1] All projects are assumed to start in 2017. PV costs based on a 50 year lifecycle, Costs are rouned up to the nearest million. Only general inflation not included at this point. Discount rate = 2.5% (5.5% cost of capital - 3% general inflation). Costs for projects in preferred strategies were

[2] Average Annual Yield = Estimated annual yield prior to modeling; Strategy modeling may show increased yields for individual projects due to projects working together

[3] PV Costs/Acre-Foot presented here are not indicative of true project costs per acre-foot. They are only useful for comparing projects.

AF = Acre Feet
SFPUC = San Francisco Public Utilities Commission
SJWC = San Jose Water Company
STWTP = Santa Teresa Water Treatment Plant
WSIMP = Water Supply and Infrastructure Master Plan
WTP = Water Treatment Plant

Water Master Plan Project Description	
Project Name	Additional Wells
Project Description	This project would add well fields on the east side of the treated water distribution system. The east side treated water system does not have treatment plant capacity to meet maximum flow rates per the District's current contracts through 2035. East side treatment plant capacity is 140 MGD. The analysis of maximum daily demands through 2035 shows maximum daily demands are projected to exceed treatment plant capacity on the east side of the system shortly in 2030. An ultimate capacity of 153 MGD is required for 2035 maximum flows. This represents an increase in capacity of 13 MGD. This project would well fields on the east side of the system to allow the District to use ground water at peak demand times and meet contract obligations. The project would construct a total of 7 well fields. The well field locations and costs are based on the 2009 IRP Well Field Implementation Plan. The well sites would be distributed along the treated water pipelines for added reliability and flexibility. The project components are described below. • Each well site includes a pipeline connecting to the treated water system. The pipeline material would be Ductile Iron with Restrained Joints (for added reliability) • Each well site includes a well and pump station unless otherwise noted. East: Total Capacity – 13 MGD Number of Well Sites – 7 Capacity per Well Site – 2 MGD • Well Sites and Components (see well field implementation plan for map of each site location): o Sites 32, 33: Pipeline Length – 680 ft Pipeline Diameter – 16" o Sites 64, 65: Pipeline Length – 180 ft Pipeline Diameter – 16" o Sites 47, 48: Pipeline Length – 80 ft Pipeline Diameter – 16" o Site 55: Pipeline Length – 45 ft

	Pipeline Diameter – 12”
Project Location	See Well Field Implementation Plan, Appendix A for maps of well sites.
Project Benefits	
Additional Water Supply Yield	This project does not provide additional water supply yield, but allows the District to meet future treated water contract obligations for maximum daily flow rates. This project provides 14 MGD of additional treated water system capacity on the East side.
Other Benefits	Please indicate which planning objectives the project meets and describe how the project meets those objectives. Click here to review the Planning Objectives TM, which describes the various objectives. ☒Ensure Supply Reliability ☒Meet service area demands ☐Maintain a diverse water supply ☒Maximize flexibility to respond to change ☐Maximize water use efficiency ☐Ensure Drinking Water Quality ☐Maximize surface water treatability ☐Meet drinking water regulations ☐Protect groundwater quality ☐Minimize Cost Impacts ☐Minimize District lifecycle costs ☐Minimize community lifecycle costs ☒Protection the Natural Environment ☒Provide benefits to watersheds, streams, and natural resources ☐Reduce greenhouse gas emissions ☐Ensure Community Benefits ☐Avoid land subsidence ☐Provide flood protection and recreational benefits ☐Ensure equitable distribution of benefits ☒Maximize Implementation Potential ☒Maximize District influence over supplies and operations ☐Minimize implementation complexities and barriers Explanation: Project allows District to meet future treated water demands and provides some redundancy to the system and increases ability to respond to change. This project could also provide seismic reliability benefits by providing another source of emergency water (flexibility to respond to change). The project maintains a diverse water supply by adding groundwater extraction to the District’s current supplies. This project is related to District owned infrastructure, and maximizes District influence.
Project Costs	
Capital Cost Estimate	$18,068,000
Annual Costs	Estimated at $100,000 per well site for a total of 7 well sites = $700,000

Estimated Useful Life	50 Years
Implementation Issues and Other Costs	• District doesn't currently have any wells except for the San Tomas Well Field. This project will require new O&M staff expertise. • The District may have to acquire right of way for the wells and for pipelines connecting to the distribution system. • Pipeline construction may disrupt highly populated areas.
Schedule	
Project Precursors	None
Project Duration	Approximately 8 year duration.
Other Information	
Other Information	
References	Well Field Implementation Plan, Water Infrastructure Reliability Program Development Phase, February 2009

Water Master Plan Project Description	
Project Name	Anderson Reservoir Expansion
Project Description	Expand Anderson Reservoir by up to 100,000 Acre-Feet, from 90,373 to 190,373. The 100,000 Acre-Feet expansion correlates to raising the dam by approximately 35 feet. Smaller expansions are possible for this alternative. This project was studied in 2002 as an alternative solution to the San Luis Reservoir Low Point Improvement Project (LPIP). It was screened out due to the costs and disadvantages listed below; however, this was based on project specific screening criteria, which differs from the WSIMP planning objectives.
Project Location	Anderson Reservoir
Project Benefits	
Additional Water Supply Yield	• Up to 100,000 Acre-Feet of additional in-county storage. This would create approximately 8,500 Acre-Feet of additional yield on average, assuming an additional constant release of 3,000 Acre-Feet/month to the distribution system. If the additional release is not included, this project increases the magnitude and frequency of shortfalls. • The purpose of the larger capacity increase (versus a smaller increase) is for operational flexibility, to allow the District to store San Felipe Division water when it is available, for use at later times during the year or in following years.

Other Benefits	Please indicate which planning objectives the project meets and describe how the project meets those objectives. Click here to review the Planning Objectives TM, which describes the various objectives.
	☒Ensure Supply Reliability
	    ☒Meet service area demands
	    ☒Maintain a diverse water supply
	    ☒Maximize flexibility to respond to change
	☐Maximize water conservation
	☒Ensure Drinking Water Quality
	    ☒Maximize surface water treatability
	    ☐Meet drinking water regulations
	    ☐Protect groundwater quality
	☐Minimize lifecycle costs
	☐Protection the Natural Environment
	    ☐Provide benefits to watersheds, streams, and natural resources
	    ☒Reduce greenhouse gas emissions
	☒Ensure Community Benefits
	    ☒Provide flood protection and recreational benefits
	    ☐Ensure equitable distribution of benefits
	☒Maximize Implementation Potential
	    ☒Maximize District influence over supplies and operations
	    ☐Minimize implementation complexities and barriers

	Explanation: - Additional storage adds ability to meet demands, maintains a diverse (local) water supply, and maximizes flexibility to respond to change, particularly climate change. - Smaller capacity increases would allow the District to capture more local supplies. Larger capacity increases would allow the District to store San Felipe Division water when it was available for carryover to the following year or use at a different time, or to mitigate for the low point problem. - Storage would be connected to distribution system, which adds reliability - As a local supply option, this maximizes District influence - Possible increased recreation, unless reservoir is used as a primary surface supply - Could increase ability to use hydroelectric facility (renewable energy source)
Project Costs	
Capital Cost Estimate	$371,407,000 - In comparison, the SFPUC Calaveras Dam Replacement is estimated at $250M construction cost, which would be approx. $400M total capital. - The Pacheco Reservoir expansion studied in the San Luis Reservoir Low Point Improvement Project is estimated at $542 M for a 50 TAF expansion and $627 M for an 80 TAF expansion.
Annual Costs	Current Anderson Dam O&M costs are $450,000, based on Long Term Forecast for Dam O&M projects. This project would have a net $0 increase in O&M costs.
Estimated Useful Life	100 years
Implementation Issues and Other Costs	- Anderson Dam is in need of seismic upgrades. The District has committed to completing these upgrades as quickly as possible, within approximately 6 years. An expansion of the reservoir could not be studied and planned quickly enough to meet the expedited schedule. It would have to be done as a separate project, which is possible, but not ideal. - There are several geotechnical constraints and issues with this alternative. The left abutment of a larger dam could encroach on an active landslide. A larger reservoir could add significant loading to several other existing landslides around the reservoir. The dam is located close to the Calaveras fault and potentially active Silver Creek fault. - An expansion could inundate a known hazardous waste site (UTC) with known contaminants including perchlorate, 1,4-dioxane, PCBs, hydrocarbons, hydrazine, tetrahydrofuran, metals, U-238, and others. Even if the expansion did not inundate the area, it would bring the reservoir closer to the contaminated area making contamination more likely. - Holiday Lake Estates septic systems and City of Morgan Hill sewer

	pump stations would be closer to the higher reservoir water level, making potential leaks and spills a greater threat. • There are conveyance system constraints with the existing dam outlet works. The outlet will likely need to be upgraded for additional capacity with an expanded reservoir. The outlet costs are included in capital costs. • An expansion could inundate up to 100 homes and other structures • If the reservoir was used as a primary surface supply, recreation may have to be limited. • Permitting and environmental mitigation could make implementation very difficult.
Schedule	
Project Precursors	Dam seismic upgrades
Project Duration	At least 10 year duration. Project could not start until Dam seismic upgrades were complete, estimated for 2017 at earliest. So, project could go from 2017 – 2027. May not be on-line soon enough to meet supply need.
Other Information	
Other Information	
References	

Water Master Plan Project Description

Project Name	Butterfield Channel Recharge
Project Description	This project includes extending the Madrone Pipeline from Madrone Channel to Morgan Hill's Butterfield Channel. This involves 7,000 feet of pipeline, crossing Madrone Channel, crossing under Highway 101, four road crossings, and an outfall structure.
Project Location	Morgan Hill, Upper Llagas Creek Watershed

Project Benefits

Additional Water Supply Yield	Recharge Capacity: 4,000 AFY Estimate based on Madrone Channel recharge rates.
Other Benefits	Please indicate which planning objectives the project meets and describe how the project meets those objectives. Click here to review the Planning Objectives TM, which describes the various objectives. ☒Ensure Supply Reliability ☒Meet service area demands ☐Maintain a diverse water supply ☐Maximize flexibility to respond to change ☐Maximize water use efficiency ☒Ensure Drinking Water Quality ☐Maximize surface water treatability ☐Meet drinking water regulations ☒Protect groundwater quality ☒Minimize Cost Impacts ☒Minimize District lifecycle costs ☐Minimize community lifecycle costs ☒Protection the Natural Environment ☒Provide benefits to watersheds, streams, and natural resources ☒Reduce greenhouse gas emissions ☐Ensure Community Benefits ☐Avoid land subsidence ☐Provide flood protection and recreational benefits ☐Ensure equitable distribution of benefits ☒Maximize Implementation Potential ☒Maximize District influence over supplies and operations ☐Minimize implementation complexities and barriers Explanation: Increases recharge capacity.

Project Costs

Capital Cost Estimate	$7,554,361
Annual Costs	$50,000
Estimated Useful Life	90 years
Implementation Issues and Other Costs	Requires crossing under Highway 101; would need to develop agreement with City of Morgan Hill, which owns the channel; would need to coordinate operation with Morgan Hill to preserve stormwater

	management function of the channel.
Schedule	
Project Precursors	Madrone Pipeline Restoration; agreements with Morgan Hill; geotechnical investigations to verify capacity though Morgan Hill reports very good infiltration rates
Project Duration	4 years, including planning, design, etc.
Other Information	
Other Information	
References	

Water Master Plan Project Description

Project Name	Calero Reservoir Expansion
Project Description	Expand Calero Reservoir from 10,050 to 24,000 AF. Capacity is currently limited to only 5,787 of the 10,050 due to DSOD operating restrictions. This project assumes that the seismic retrofit of the dam to remove the operating restriction will be done prior to or at the same time as dam expansion. An increase to 24,000 corresponds to the following increases: • Dam raises from 90 ft high to 120 ft. high (30 ft. raise) • Normal max water surface elevation raises from 483.5 ft. to 513 ft. • Reservoir length increases from 2.2 to 2.7 miles • Max reservoir surface area increases from 342 to 581 Acres • Shoreline increases from 9 miles to 13.5 miles Specific project components include the following: • Seismically retrofitting the dam, unless already done • Raising the dam • Modifying the spillway • Modifying the outlet pipe • Modifications to Almaden-Calero Canal (Not enough head from Almaden reservoir once water surface elevation is raised) • New inlet tower with multi-port outlet (to address water quality concerns) • Removal or repair of Fellows Dike • Relocation of McKean Road (existing road would be inundated) • Relocation of the Calero Pipeline Specific design information was developed in a 1982 report, “Draft Application Report: Calero Reservoir Enlargement”; however, it will need to be updated to current design criteria (specifically seismic and Probable Maximum Flood criteria).
Project Location	Calero Reservoir

Project Benefits

Additional Water Supply Yield	• Increase in local storage of 13,950 AF due to dam expansion • Dry Year = 0 AF • Normal Year = 167 AF • Wet Year = 8,730
Other Benefits	Please indicate which planning objectives the project meets and describe how the project meets those objectives. Click here to review the Planning Objectives TM, which describes the various objectives. ☒Ensure Supply Reliability ☒Meet service area demands

	☒Maintain a diverse water supply ☒Maximize flexibility to respond to change ☐Maximize water conservation ☒Ensure Drinking Water Quality ☒Maximize surface water treatability ☐Meet drinking water regulations ☐Protect groundwater quality ☐Minimize lifecycle costs ☐Protection the Natural Environment ☐Provide benefits to watersheds, streams, and natural resources ☐Reduce greenhouse gas emissions ☒Ensure Community Benefits ☒Provide flood protection and recreational benefits ☐Ensure equitable distribution of benefits ☒Maximize Implementation Potential ☒Maximize District influence over supplies and operations ☐Minimize implementation complexities and barriers Explanation: • Additional storage adds ability to meet demands, maintains a diverse (local) water supply, and maximizes flexibility to respond to change, particularly climate change. • Calero storage is connected to Distribution system, which adds reliability • A new multi-port outlet adds source water quality treatability • Possible increased recreation on Calero, and project could include new campgrounds, parks, trails, etc. around the reservoir. • As a local supply option, this maximizes District influence
Project Costs	
Capital Cost Estimate	$154,450,000
Annual Costs	Current Dam O&M costs are $450,000 per dam based on Long Term Forecast for Dam O&M projects. This project results in a net $0 increase in O&M costs for the District.
Estimated Useful Life	100 years
Implementation Issues and Other Costs	• An expansion would inundate McKean road, the Calero pipeline, and several parcels, two of which appear to be residences. The road would have to be moved or the reservoir bridged. It could be difficult to find an acceptable alignment. • If the reservoir was used as a primary surface supply, recreation may have to be limited. In addition, the stable across McKean Road would have to be relocated. • Permitting and environmental mitigation could make implementation very difficult • The Dam will likely require hydraulic operating system upgrades at the same time.
Schedule	
Project Precursors	

Project Duration	Approximately 15 years
Other Information	
Other Information	
References	*Draft Application Report: Calero Reservoir Enlargement, June 1982*

Water Master Plan Project Description

Project Name	Church Avenue Diversion Repair
Project Description	This project would construct a diversion dam on Llagas Creek to provide water to the Church Avenue Recharge Pond system. Previously, a gravel dam was used to back up water in the creek to fill the pipeline to feed the ponds. The District is unable to utilize the full recharge capacity of the Church Recharge Pond system. Consequently, the District is unable to fully exercise its water rights for Chesbro and Uvas Reservoirs. This is an unfunded CIP project.
Project Location	Llagas Creek at Church Avenue, San Martin

Project Benefits

Additional Water Supply Yield	An average of approximately 4,800 AFY.
Other Benefits	Please indicate which planning objectives the project meets and describe how the project meets those objectives. Click here to review the Planning Objectives TM, which describes the various objectives. ☒Ensure Supply Reliability ☒Meet service area demands ☐Maintain a diverse water supply ☒Maximize flexibility to respond to change ☐Maximize water use efficiency ☒Ensure Drinking Water Quality ☐Maximize surface water treatability ☐Meet drinking water regulations ☒Protect groundwater quality ☐Minimize Cost Impacts ☒Minimize District lifecycle costs ☐Minimize community lifecycle costs ☒Protection the Natural Environment ☐Provide benefits to watersheds, streams, and natural resources ☒Reduce greenhouse gas emissions ☐Ensure Community Benefits ☐Avoid land subsidence ☐Provide flood protection and recreational benefits ☐Ensure equitable distribution of benefits ☒Maximize Implementation Potential ☒Maximize District influence over supplies and operations ☐Minimize implementation complexities and barriers Explanation: Increases recharge and recharge capacity, which helps meet demands, maintains diversity, and maintains processing capacity in the Lower Llagas Recharge system. Recharge with local surface water improves groundwater quality. Maximizes the District ability of use its existing supplies.

Project Costs

Capital Cost Estimate	$4M, including planning, design, construction, and close-out, based on current CIP estimate.
Annual Costs	$50,000 Includes $15,000 for O&M plus an additional $35,000 for any environmental mitigation/monitoring that may be required.
Estimated Useful Life	50 years
Implementation Issues and Other Costs	Potential impacts to steelhead and the aquatic environment in Llagas Creek from the permanent instream structure. The project needs to incorporate "fish friendly" mitigation measures to allow migration.
Schedule	
Project Precursors	
Project Duration	5 years
Other Information	
Other Information	
References	CIP, Engineering report for perchlorate recharge mitigation feasibility study by Kennedy Jenks (2007)

Water Master Plan Project Description	
Project Name	Dry Year Option Agreement
Project Description	This would be a long-term agreement with another water agency in which the District retains the option to call upon up to 10,000 AF of supply from the partner(s) in any year. Costs will vary depending on whether we are partnering with a north of Delta agency or a south of Delta agency. Additional increments of 5,000 AF of supply could also be developed.
Project Location	Countywide
Project Benefits	
Additional Water Supply Yield	Up to 10,000 AFY in critically dry years, once every six years. The actual yield will be 75% of the agreement amount due to carriage loss in the Delta. For example, the actual yield in a critically dry year from a 10 TAF option would be 7.5 TAF. Can be increased by 5,000 AFY increments. The WSIMP is looking at four levels of options agreements: 10 TAFY – Actual yield is 7.5TAF 20 TAFY – Actual yield is 15TAF 30 TAFY – Actual yield is 22.5TAF 40 TAFY – Actual yield is 30 TAF

Other Benefits	Please indicate which planning objectives the project meets and describe how the project meets those objectives. Click here to review the Planning Objectives TM, which describes the various objectives.
	☒Ensure Supply Reliability
	    ☒Meet service area demands
	    ☐Maintain a diverse water supply
	    ☒Maximize flexibility to respond to change
	☐Maximize conservation
	☐Ensure Drinking Water Quality
	    ☐Maximize surface water treatability
	    ☐Meet drinking water regulations
	    ☐Protect groundwater quality
	☒Minimize lifecycle costs
	☐Protection the Natural Environment
	    ☐Provide benefits to watersheds, streams, and natural resources
	    ☐Reduce greenhouse gas emissions
	☐Ensure Community Benefits
	    ☐Provide flood protection and recreational benefits
	    ☐Ensure equitable distribution of benefits
	☒Maximize Implementation Potential
	    ☒Maximize District influence over supplies and operations
	    ☒Minimize implementation complexities and barriers
	Explanation:

	Provides additional supplies in dry years. The District has experience developing imported water contracts and agreements of various kinds.
Project Costs	
Capital Cost Estimate	Not applicable
Annual Costs	See detailed information below. Basically, cost is $25 per AF per year for the agreement, then $300/AF purchased in a critically dry year plus carriage cost of $50/AF received (75% of what was purchased is received). For 10 TAF agreement, there is an annual cost of $250,000 for five years, plus a one time cost of $3,375,000 in the year the option is exercised. The annual and one time costs for the other agreement levels are shown below: 20TAF: $500K annual, $6.75M 30TAF: $750K annual, $10.125M 40TAF: $1M annual, $13.5M
Estimated Useful Life	15 years
Implementation Issues and Other Costs	
Schedule	
Project Precursors	
Project Duration	Agreements are typically short termed. 5 years was used for WSIMP.
Other Information	
Other Information	North of Delta partner: 1) Option payment (annual cost to retain option): $25/af per year, to be paid whether we call on the water or not. 2) Cost of water once option is exercised: a. $300/af in critical and dry years b. $250/af in below normal years c. $100/af in above normal and wet years. 3) Assume 25% of any quantity purchased will be attributed to carriage water losses in the Delta, followed by conveyance losses south of the Delta. In effect, we would receive 75% of the water that we pay for. 4) Variable cost (cost for conveying the water that is actually received): $50/af – to be paid only when water is called upon, and only applied to the 75% that is received. South of Delta partner: 5) Option payment (annual cost to retain option): $50/af per year, to be paid whether we call on the water or not. 6) Cost of water once option is exercised: a. $350/af in critical and dry years b. $300/af in below normal years

	c. $150/af in above normal and wet years. 7) Assume no carriage water losses (water does not cross the Delta) – we receive 100% of the supply that we purchase. 8) Variable cost (cost for conveying the water that is actually received): $50/af – to be paid only when water is called upon.
References	

Water Master Plan Project Description	
Project Name	Exchange Contract
Project Description	2:1 Exchange: This would involve an exchange agreement in which the District is provided with a quantity of dry year supply in exchange for returning twice that quantity in above normal or wet years. • There is no set quantity, but we can estimate a 20,000:10,000 af exchange. WSIMP can explore other quantities as well. • Cost is associated with the conveyance to our partner of the extra water that will not be returned. This is approximately $50/af and should be applied to half of the water that the District provides to the exchange partner.
Project Location	N/A
Project Benefits	
Additional Water Supply Yield	There is no set quantity, but we can estimate a 20,000:10,000 af exchange. WSIMP can explore other quantities as well.
Other Benefits	Please indicate which planning objectives the project meets and describe how the project meets those objectives. Click here to review the Planning Objectives TM, which describes the various objectives. ☒Ensure Supply Reliability ☐Meet service area demands ☐Maintain a diverse water supply ☒Maximize flexibility to respond to change ☐Maximize water conservation ☐Ensure Drinking Water Quality ☐Maximize surface water treatability ☐Meet drinking water regulations ☐Protect groundwater quality ☒Minimize lifecycle costs ☐Protect the Natural Environment ☐Provide benefits to watersheds, streams, and natural resources ☐Reduce greenhouse gas emissions ☐Ensure Community Benefits ☐Provide flood protection and recreational benefits ☐Ensure equitable distribution of benefits ☒Maximize Implementation Potential ☒Maximize District influence over supplies and operations ☒Minimize implementation complexities and barriers Explanation: Provides additional dry year options.
Project Costs	
Capital Cost Estimate	N/A

Annual Costs	Cost is associated with the conveyance to our partner of the extra water that will not be returned. This is approximately $50/af and should be applied to half of the water that the District provides to the exchange partner.
Estimated Useful Life	As long as agreements are in place
Implementation Issues and Other Costs	Need to identify a partner for agreement.
Schedule	
Project Precursors	Identify partner Create and finalize agreements, schedules, etc
Project Duration	N/A
Other Information	
Other Information	
References	

Water Master Plan Project Description	
Project Name	Graywater System Rebates
Project Description	Program entails providing an incentive to homeowners to utilize graywater, thereby reducing potable water use
Project Location	Santa Clara County
Project Benefits	
Additional Water Supply Yield	Program will reduce demands in all weather years. Actual savings will vary depending on the type and size of systems in the program. A simple clothes washer system has the potential to save 40 – 50 gallons per day per household. A more complex system has the potential to save 120 – 150 gallons per day per household. However, since graywater will most likely be utilized in landscape, for sites that turn off their irrigation system during the winter months there will be no potable water savings during these months (except for drought years). A program with a goal of 1,000 installations per year could save approximately 30 af/yr. With a 10 year lifespan for each installation, that's 300 af saved for each 1000 installations. Average estimated yield per year for 24 years = 187.5 AF (4500 total over planning horizon)

Other Benefits	Please indicate which planning objectives the project meets and describe how the project meets those objectives. Click here to review the Planning Objectives TM, which describes the various objectives.
	☒Ensure Supply Reliability
	    ☒Meet service area demands
	    ☒Maintain a diverse water supply
	    ☐Maximize flexibility to respond to change
	☒Maximize water use conservation
	☐Ensure Drinking Water Quality
	    ☐Maximize surface water treatability
	    ☐Meet drinking water regulations
	    ☐Protect groundwater quality
	☒Minimize lifecycle costs
	☒Protection the Natural Environment
	    ☒Provide benefits to watersheds, streams, and natural resources
	    ☒Reduce greenhouse gas emissions
	☐Ensure Community Benefits
	    ☐Provide flood protection and recreational benefits
	    ☐Ensure equitable distribution of benefits
	☐Maximize Implementation Potential
	    ☐Maximize District influence over supplies and operations
	    ☐Minimize implementation complexities and barriers
	Explanation: Graywater, a water use efficiency measure, is a reliable, all weather-supply that reduces potable demands. By reducing potable demands, it indirectly provides a community benefit since more water will be available for streams and natural resources. Also, a reduction in

	demands means less pumping, treatment, distribution, end-use, and wastewater treatment, thereby reducing energy/greenhouse gas emissions. Finally, a reduction in potable demands means less groundwater pumping.
Project Costs	
Capital Cost Estimate	This is not a capital project. There will be a onetime cost (e.g. the incentive), plus any costs to administer the program. Will need to do a thorough analysis to determine what types of systems to incentivize and for what amount. For reference, the city of Santa Rosa is currently offering a $75 rebate for simple systems and $200 for every 1,000 gallons of sustained savings for the more complex systems. There will be minimal marketing/printing costs. Annual staff time to implement a program is estimated to be 150 - 200 hours of a water conservation specialist's time, plus 100 – 150 hours of student intern time. There may be opportunities to cost-share with local water retailers, thereby reducing District costs. A program with an annual budget of roughly $100,000 could potentially fund up to 1,000 installations/yr. It may take time to ramp up to this level though. By the 10th year, might be able to double the number of installations per year. Total Annual Cost = $100,000 – no upfront capital cost
Annual Costs	None
Estimated Useful Life	Will vary depending on types of system rebated. Most likely 10 – 15 years. Program duration would be approximately 15 years, though it might be able to be stretched to 20 years.
Implementation Issues and Other Costs	The State recently passed legislation to simplify the legal requirements of graywater. Local land-use jurisdictions have the option to adopt something more stringent. Several land-use agencies and the District are working on a model ordinance for all land-use agencies in the county to consider. The District has concerns regarding groundwater quality and would like to see certain criteria be included in the model. It may take some time to finalize this model and then for the land-use agencies to adopt. There is no guarantee that all will adopt it.
Schedule	
Project Precursors	Local land-use agencies will need to decide whether or not they are permitting graywater systems and to what extent if they are.
Project Duration	
Other Information	
Other Information	A policy discussion may be needed…does the District want to spend money to reuse water on-site (i.e. graywater) rather than have it go to

	the wastewater treatment plant and potentially become recycled water. I checked with my contacts at SJ and PA, neither indicated that their agencies are against the promotion of graywater.
References	

Water Master Plan Project Description

Project Name	Guadalupe Watershed Recharge Pond
Project Description	This project would implement the groundwater recharge component of the San Luis Reservoir Low-Point Combination Alternative by constructing four groundwater recharge facilities. The complete Combination Alternative would develop new groundwater well and recharge facilities, which combined with operational changes, would provide SCVWD and SBCWD with alternate supplies when San Luis Reservoir drops below 300 TAF. The Combination Alternative would reoperate the SCVWD and SBCWD conveyance systems to meet treated water demands without adversely affecting its groundwater basin, local surface storage, and banked storage. The Combination Alternative includes the following components for these two districts: • Groundwater extraction wells • Groundwater recharge ponds • Reoperation of Anderson Reservoir • Delivery of CVP supplies through the South Bay Aqueduct (SBA) This alternative was developed to provide added annual operations and supply reliability and flexibility in response to the San Luis Reservoir low-point problem. However, the additional recharge ponds and well fields could be used in years without the low point problem to increase long-term water reliability and increase supply availability.
Project Location	Los Gatos and Guadalupe Watersheds

Project Benefits

Additional Water Supply Yield	Currently, combined recharge capacity is estimated at 40 acre-feet per day. This would equate to 8,000 AFY of additional recharge capacity (assuming recharge occurs 200 days per year).

Other Benefits	Please indicate which planning objectives the project meets and describe how the project meets those objectives. Click here to review the Planning Objectives TM, which describes the various objectives.
	☒Ensure Supply Reliability
	    ☒Meet service area demands
	    ☐Maintain a diverse water supply
	    ☒Maximize flexibility to respond to change
	☐Maximize water use efficiency
	☒Ensure Drinking Water Quality
	    ☐Maximize surface water treatability
	    ☐Meet drinking water regulations
	    ☒Protect groundwater quality
	☐Minimize Cost Impacts
	    ☐Minimize District lifecycle costs
	    ☐Minimize community lifecycle costs
	☒Protection the Natural Environment
	    ☒Provide benefits to watersheds, streams, and natural resources
	    ☒Reduce greenhouse gas emissions

	☒Ensure Community Benefits
	    ☒Avoid land subsidence
	    ☐Provide flood protection and recreational benefits
	    ☐Ensure equitable distribution of benefits
	☒Maximize Implementation Potential
	    ☒Maximize District influence over supplies and operations
	    ☒Minimize implementation complexities and barriers
	
	Explanation:
	• Increases recharge capacity, helping to meet demands, maintain a diverse supply, and maximize flexibility to use wet year water.
	• Recharge with high quality surface water generally improves or maintains groundwater quality.
	• Additional recharge capacity helps avoid land subsidence. Recharge ponds can act as retention basins during storm events and some have recreational components.
	• Local recharge capacity increases our ability to manage existing local supplies and is relatively easy to implement.

Project Costs	
Capital Cost Estimate	$34,428,700 $30 million was the 2010 estimate for the San Luis Reservoir Low Point Improvement Project. Only 25% was added for design, CM, and close-out; changed to 40% to be more consistent with other cost estimates, assuming planning is complete. Also, costs adjusted to 2011. Revised cost estimates are scheduled to be available in May 2011.
Annual Costs	*See attached table:* Annual O&M (labor, power, fuel, maintenance, treatment, etc) for 50 acres recharge ponds = $2 ,250,862
Estimated Useful Life	Cost estimate based on 90 years
Implementation Issues and Other Costs	Unknown environmental mitigation costs. Ability to purchase land and deliver water to ponds.
Schedule	
Project Precursors	Lease or buy land Potential Federal Repayment contract
Project Duration	Feasibility Study and Environmental Impact Report Sept 2012 Design and Permitting Oct 2012-2013
Other Information	
Other Information	
References	*Administrative draft FS for the San Luis Reservoir Low-Point Improvement Project is underway and scheduled for release in Fall 2011.*

<table>
<tr><th colspan="2">Water Master Plan Project Description</th></tr>
<tr><td>Project Name</td><td>Hecker Pass Irrigation</td></tr>
<tr><td>Project Description</td><td>Additional distribution piping in the Hecker Pass area for additional landscape irrigation customers, combined with additional booster pump capacity. Described as Group A3 projects in the South County Recycled Water Master Plan (2004), this group maximizes increased recycled water usage with minimal additional distribution costs. Proposed user sites are Gilroy Gardens (formerly Bonfante Gardens), the Hecker Pass Development, and Goldsmith Seeds.

The District previously worked with Gilroy Gardens to identify the benefits of recycled water, respond to perceived quality concerns, and minimize the time necessary to implement usage at the site. The Master Plan estimated annual recycled water usage of 340 acre-feet, approximately half of Gilroy Gardens' water usage. Gilroy Gardens, which is currently owned by the City of Gilroy, is the largest potential customer of recycled water in the Hecker Pass area.

The Hecker Pass Development is a proposed subdivision with Specific Plan documentation already submitted to City of Gilroy Planning Department. The South County Recycled Water Master Plan also estimated 65 acre-feet/year recycled water use at the planned Hecker Pass Development.

An initial estimate of annual recycled water usage at Goldsmith Seeds is 15 acre-feet, approximately half of current groundwater usage.</td></tr>
<tr><td>Project Location</td><td>Gilroy, Hecker Pass</td></tr>
<tr><th colspan="2">Project Benefits</th></tr>
<tr><td>Additional Water Supply Yield</td><td>Average seasonal recycled water demand, acre-feet per year (AFY).
Goldsmith Seeds: 15 AFY
Gilroy Gardens: 340 AFY
Hecker Pass Development: 65 AFY</td></tr>
<tr><td>Other Benefits</td><td>Please indicate which planning objectives the project meets and describe how the project meets those objectives. Click here to review the Planning Objectives TM, which describes the various objectives.

☒Ensure Supply Reliability
    ☒Meet service area demands (meets specific non-potable service area demand needs in the Hecker Pass area, including future development)
    ☒Maintain a diverse water supply (increases recycled water use which maintains the diversity of supply)
    ☐Maximize flexibility to respond to change
☐Maximize water use efficiency
☐Ensure Drinking Water Quality
    ☐Maximize surface water treatability
    ☐Meet drinking water regulations
    ☐Protect groundwater quality
☒Minimize Cost Impacts</td></tr>
</table>

	☒Minimize District lifecycle costs ☐Minimize community lifecycle costs (projected cost per AF is less than drinking water (gw) costs.) ☐Protection the Natural Environment ☐Provide benefits to watersheds, streams, and natural resources (reduces amount of treated sewage discharge to Pajaro and Monterey Bay) ☐Reduce greenhouse gas emissions ☐Ensure Community Benefits ☐Avoid land subsidence ☐Provide flood protection and recreational benefits ☐Ensure equitable distribution of benefits ☒Maximize Implementation Potential ☒Maximize District influence over supplies and operations ☒Minimize implementation complexities and barriers (the proposed project has the lowest score on implementation issues of the south county non-potable supply projects) Explanation: • (meets specific non-potable service area demand needs in the Hecker Pass area, including future development) • (increases recycled water use which maintains the diversity of supply) • (projected cost per AF is less than drinking water (gw) costs) • (reduces amount of treated sewage discharge to Pajaro and Monterey Bay) • (the proposed project has the lowest score on implementation issues of the south county non-potable supply projects)
Project Costs	
Capital Cost Estimate	$6,427,644
Annual Costs	$22,310
Estimated Useful Life	40 years
Implementation Issues and Other Costs	The master plan indicates constraints are the lowest for this project package. Constraints were identified as low for the following environmental review criteria: Land Use/Policy; Traffic; Biological Resources; Cultural Resources; Hydrologic Resources; Hazardous Materials. Recycled water project implementation depends on users meeting projected recycled water use rates.
Schedule	
Project Precursors	Completion of the “Short-Term” projects in the South County Recycled Water Master Plan.
Project Duration	Construction estimated at 2 years in the master plan.
Other Information	
Other Information	Capital costs based on South County Recycled Water Master Plan; inflated construction cost using RS Means Historical Cost Indexes.

	O&M costs estimated based on the FY11 budget for the existing system.
References	2004, SOUTH COUNTY RECYCLED WATER MASTER PLAN. SANTA CLARA VALLEY WATER DISTRICT/ SOUTH COUNTY REGIONAL WASTEWATER AUTHORITY **http://www.ci.gilroy.ca.us/cityofgilroy_files/city_hall/community_development/engineering/master_plans/SouthCountyRecWatMP.pdf**

Water Master Plan Project Description	
Project Name	Imported Water Contract Purchase
Project Description	This would be a permanent transfer of SWP or CVP ag contract supply to SCVWD.
Project Location	Countywide
Project Benefits	
Additional Water Supply Yield	10,000 AFY of contract supply. SWP average yield = 60% CVP ag average yield = 45%
Other Benefits	Please indicate which planning objectives the project meets and describe how the project meets those objectives. Click here to review the Planning Objectives TM, which describes the various objectives. ☒Ensure Supply Reliability ☒Meet service area demands ☐Maximize local supply development ☐Maximize flexibility to respond to change ☐Maximize water use conservation ☐Ensure Drinking Water Quality ☐Maximize surface water treatability ☐Meet drinking water regulations ☐Protect groundwater quality ☒Minimize lifecycle costs ☐Protection the Natural Environment ☐Provide benefits to watersheds, streams, and natural resources ☐Reduce greenhouse gas emissions ☐Ensure Community Benefits ☐Provide flood protection and recreational benefits ☐Ensure equitable distribution of benefits ☒Maximize Implementation Potential ☐Maximize District influence over supplies and operations ☒Minimize implementation complexities and barriers Explanation: Provides additional water for recharge and treatment plants. Relatively low cost. Would build on existing imported water contract experience.
Project Costs	
Capital Cost Estimate	Cost to secure the permanent transfer = $2,000/af or $20,000,000 for 10,000 AF contract.
Annual Costs	Variable Cost = $50/af delivered. Deliveries based on average yields/deliveries (SWP average yield = 60%; CVP ag average yield = 45%) SWP Annual Variable Costs = $300,000 CVP Annual Variable Costs = $225,000
Estimated Useful Life	15 years

Implementation Issues and Other Costs	Not a lot of water in dry years. Would be more useful combined with additional storage or treatment capacity.
Schedule	
Project Precursors	
Project Duration	2 years to secure agreement.
Other Information	
Other Information	
References	

Water Master Plan Project Description	
Project Name	Imported Water Reoperations
Project Description	This project would "sell" 60,000 AF of the District's storage in Semitropic Water Bank. The money could be used to offset costs for other WSIMP projects and/or ongoing operations. Current modeling indicates that we are unable to use all of our storage in Semitropic under future water supply and demand conditions.
Project Location	Kern County
Project Benefits	
Additional Water Supply Yield	None

Other Benefits	Please indicate which planning objectives the project meets and describe how the project meets those objectives. Click here to review the Planning Objectives TM, which describes the various objectives.
	☐Ensure Supply Reliability
	  ☐Meet service area demands
	  ☐Maintain a diverse water supply
	  ☐Maximize flexibility to respond to change
	☐Maximize water use efficiency
	☐Ensure Drinking Water Quality
	  ☐Maximize surface water treatability
	  ☐Meet drinking water regulations
	  ☐Protect groundwater quality
	☒Minimize Cost Impacts
	  ☒Minimize District lifecycle costs
	  ☐Minimize community lifecycle costs
	☐Protection the Natural Environment
	  ☐Provide benefits to watersheds, streams, and natural resources
	  ☐Reduce greenhouse gas emissions
	☐Ensure Community Benefits
	  ☐Provide flood protection and recreational benefits
	  ☐Ensure equitable distribution of benefits
	☒Maximize Implementation Potential
	  ☒Maximize District influence over supplies and operations
	  ☒Minimize implementation complexities and barriers
	Explanation:
	Provides money to the District. The District's ability to take from Semitropic is limited, so reducing our dependence on Semitropic would improve our influence over operations. Other agencies, including those that we already have agreements with, have expressed interest in using our Semitropic storage.

Project Costs	
Capital Cost Estimate	Not Applicable
Annual Costs	Would reduce annual costs for putting and taking, plus would provide revenue when water is sold.

	Annual cost savings estimated at $1.5 Million Revenue when water is sold = $9 Million Water is sold in wet years, approximately once every 6 years
Estimated Useful Life	25 years
Implementation Issues and Other Costs	Depends on finding a willing “buyer” and contract review by state (and maybe federal) agencies.
Schedule	
Project Precursors	
Project Duration	1 years
Other Information	
Other Information	
References	IWRP 2003

<table>
<tr><th colspan="2">Water Master Plan Project Description</th></tr>
<tr><td>Project Name</td><td>Increase Santa Teresa Water Treatment Plant (STWTP) Capacity</td></tr>
<tr><td>Project Description</td><td>Expand STWTP Capacity by up to 15 MGD.

An increase in STWTP capacity would require increasing filter capacity and potentially upsizing the ozone equipment if it were determined that the system needed the same water quality requirements which included provisions for worse influent water conditions than are currently being experienced. Smaller equipment for the WTIP2 installed chemical systems were sized for the current 100 mgd plant and would need to be checked for sizing based upon any expansion alternatives. Similarly, any of the existing systems not revised by WTIP2 such as plant water and backwash systems would need to be evaluated for capacity. Although slightly modified by WTIP2, the washwater recovery system would also need to be assessed. The STWTP facilities installed under WTIP2 were sized to accommodate some increase in capacity, namely in the sizing of large pipes and the allowance of space for enlarging the ozone contactors.

The east side treated water system does not have treatment plant capacity to meet maximum flow rates per the District’s current contracts through 2035. East side treatment plant capacity is 140 MGD. The analysis of maximum daily demands through 2035 is provided in the table below. (These demands were calculated for the baseline system assessment for the 2010 UWMP and WSIMP.) As shown in the table, total maximum daily demands are projected to exceed treatment plant capacity on the east side of the system shortly after 2025.

WSIMP East Treated Water System Maximum Daily Flow Rates
<table>
<tr><th></th><th>2015 MDD (MGD)</th><th>2020 MDD (MGD)</th><th>2025 MDD (MGD)</th><th>2030 MDD (MGD)</th><th>2035 MDD (MGD)</th></tr>
<tr><td>180% of Average Annual Amount</td><td>124</td><td>126</td><td>133</td><td>142</td><td>153</td></tr>
</table>
</td></tr>
<tr><td>Project Location</td><td>STWTP</td></tr>
<tr><th colspan="2">Project Benefits</th></tr>
<tr><td>Additional Water Supply Yield</td><td>This project does not provide additional water supply yield, but allows the District to meet future treated water contract obligations for maximum daily flow rates. The project provides 15 MGD of additional treated water system capacity.</td></tr>
<tr><td>Other Benefits</td><td>Please indicate which planning objectives the project meets and describe how the project meets those objectives.</td></tr>
</table>

	☒Ensure Supply Reliability ☒Meet service area demands ☐Maintain a diverse water supply ☐Maximize flexibility to respond to change ☐Maximize water use efficiency ☒Ensure Drinking Water Quality ☐Maximize surface water treatability ☒Meet drinking water regulations ☐Protect groundwater quality ☐Minimize Cost Impacts ☐Minimize District lifecycle costs ☐Minimize community lifecycle costs ☐Protection the Natural Environment ☐Provide benefits to watersheds, streams, and natural resources ☐Reduce greenhouse gas emissions ☐Ensure Community Benefits ☐Avoid land subsidence ☐Provide flood protection and recreational benefits ☐Ensure equitable distribution of benefits ☒Maximize Implementation Potential ☒Maximize District influence over supplies and operations ☐Minimize implementation complexities and barriers Explanation: Project allows District to meet future treated water demands and provides additional treatment plant capacity, which provides some redundancy to the system and increases ability to respond to change. The project will meet drinking water quality regulations, but does not provide any change over current service levels. This project is related to District owned infrastructure, and maximizes District influence.
Project Costs	
Capital Cost Estimate	$70,000,000 – This estimate includes capital planning, design, construction management, and close-out phases, and all construction contingencies and overhead. This estimate is based on the following projects: • PWTP WTIP2 - $70 M • STWTP WTIP2 - $60 M • RWTP RIP - $90 M
Annual Costs	Total annual O&M costs for STWTP are approximately $7M/year based on the FY 11 budget – see breakdown below: General Operations - $5M Maintenance - $1.6M Control/Electrical Systems & Engineering – $0.4M

	This project would add 15% of STWTP's current capacity. As such the increase in annual O&M costs is estimated as 0.15 * $7M. Annual O&M = $1.05M
Estimated Useful Life	50 years
Implementation Issues and Other Costs	• Plant neighbors are sensitive to noise at the plant. Plant expansion could increase noise and adversely impact neighbors. • Plant construction in general could adversely impact neighbors
Schedule	
Project Precursors	None
Project Duration	Estimated 8 year duration from planning to completion.
Other Information	
Other Information	
References	

Water Master Plan Project Description	
Project Name	Indirect Potable Reuse Recharge – Coyote Creek Ponds
Project Description	The IPR Coyote Creek Ponds Project would consist of a) a 5 MGD satellite Advanced Treated Water Facility located approximately at the end of the Silver Creek recycled water pipeline near Monterey Road in South San Jose, b) a 5 MGD pump station, c) a . 5 mile 8" brine gravity feed pipeline connection to the city of San Jose's sewer pipeline on Santa Teresa Road for MF backwash and RO reject, and d) 1 miles of 18" pipe to a new off-stream pond next to Coyote Creek, which is being planned in the FAHCE project. The project goals are to (1) provide a local all- weather, drought proof supplemental supply, (2) diversify the water supply portfolio, (3) improve groundwater storage conditions, (4) optimize local water rights, (5) improve groundwater quality, and (6) minimize environmental effects by leveraging existing facilities. .
Project Location	The project is located in Zone W5 but the water supply serves zone W2. The source wastewater is from the South Bay Water Recycling Silver Creek pipeline. The 5 mgd satellite advanced water treatment facility will be located within the vicinity of the Silver Creek pipeline.
Project Benefits	
Additional Water Supply Yield	The estimated water supply yield is 5,000 acre-feet annually. IPR water would be a year-round source available in all year types.
Other Benefits	Please indicate which planning objectives the project meets and describe how the project meets those objectives. Click here to review the Planning Objectives TM, which describes the various objectives. ☒Ensure Supply Reliability ☒Meet service area demands ☒Maintain a diverse water supply ☒Maximize flexibility to respond to change ☐Maximize water conservation ☒Ensure Drinking Water Quality ☐Maximize surface water treatability ☐Meet drinking water regulations ☒Protect groundwater quality ☐Minimize lifecycle costs ☐Protect the Natural Environment ☐Provide benefits to watersheds, streams, and natural resources ☐Reduce greenhouse gas emissions ☐Ensure Community Benefits ☐Provide flood protection and recreational benefits ☐Ensure equitable distribution of benefits ☒Maximize Implementation Potential ☒Maximize District influence over supplies and operations ☐Minimize implementation complexities and barriers

	Explanation: The project provides a local all- weather, drought proof supplemental supply, diversifies the water supply portfolio, improves groundwater storage conditions, and improves groundwater quality.
Project Costs	
Capital Cost Estimate	$44,913,211.
Annual Costs	2/8/12: Updated estimate based on O&M Cost estimate for the IPR feasibility study. Estimated annual cost for 5 MGD = $3,581,115. This includes water purchase costs.
Estimated Useful Life	90 Years
Implementation Issues and Other Costs	The feasibility of IPR in the area has not yet been verified. Additional investigation into public acceptance is necessary.
Schedule	
Project Precursors	Public outreach campaign.
Project Duration	10 Years
Other Information	
Other Information	
References	

Water Master Plan Project Description	
Project Name	Indirect Potable Reuse Recharge – Guadalupe Ponds
Project Description	The IPR Guadalupe River Ponds Project would consist of a) a 12 MGD Advanced Treated Water Facility at the San Jose Water Pollution Control Plant (WPCP), b) a 12 MGD pump station, and, c) approximately 17 miles plus miles of 30" pipeline from the WPCP to the existing Guadalupe River Ponds in South San Jose and Almaden Valley. The project goals are to (1) provide a local all- weather, drought proof supplemental supply (2) diversify the water supply portfolio (2) improve groundwater storage conditions (3) optimize local water rights (4) improve groundwater quality, and (5) minimize environmental effects by leveraging existing facilities.
Project Location	The project is located in north Santa Clara County. The source wastewater, advanced water treatment facility, and pump station would be located at the south bay on City of San Jose WPCP lands. The pipeline alignment runs southerly, possibly down the highway 87 corridor, until it meets the first set of Guadalupe ponds off the Guadalupe River. A connecting pipeline would be required between the Kooser, Los Capitancillos, Alamitos and Guadalupe ponds.
Project Benefits	
Additional Water Supply Yield	The estimated water supply yield is 11,000 acre-feet annually. IPR water would be a year-round water supply available in all year types.
Other Benefits	Please indicate which planning objectives the project meets and describe how the project meets those objectives. Click here to review the Planning Objectives TM, which describes the various objectives. ☒Ensure Supply Reliability ☒Meet service area demands ☒Maintain a diverse water supply ☒Maximize flexibility to respond to change ☐Maximize water use efficiency ☒Ensure Drinking Water Quality ☐Maximize surface water treatability ☐Meet drinking water regulations ☒Protect groundwater quality ☐Minimize Cost Impacts ☐Minimize District lifecycle costs ☐Minimize community lifecycle costs ☐Protection the Natural Environment ☐Provide benefits to watersheds, streams, and natural resources ☐Reduce greenhouse gas emissions ☒Ensure Community Benefits ☒Avoid land subsidence ☐Provide flood protection and recreational benefits ☐Ensure equitable distribution of benefits ☒Maximize Implementation Potential

	☒Maximize District influence over supplies and operations ☐Minimize implementation complexities and barriers Explanation: The project provides a local all-weather, drought proof supplemental supply, diversifies the water supply portfolio, improves groundwater storage conditions, and improves groundwater quality.
Project Costs	
Capital Cost Estimate	$248,606,000
Annual Costs	Annual Costs are based on District WTP FY 11 operations budgets: STWTP = $7M RWTP = $10M PWTP = $6M Total = $23 M for 220 MGD of treatment = $104,545/MG For 12 MG Plant, Annual O&M = $104,545*12 = $1,255,000
Estimated Useful Life	90 Years
Implementation Issues and Other Costs	The feasibility of IPR in the area has not yet been verified. Additional investigation into groundwater retention times and public acceptance is necessary.
Schedule	
Project Precursors	Public acceptance; groundwater modeling
Project Duration	10 Years
Other Information	
Other Information	
References	

<table>
<tr><th colspan="2">Water Master Plan Project Description</th></tr>
<tr><td>Project Name</td><td>Indirect Potable Reuse Recharge – Los Gatos Ponds</td></tr>
<tr><td>Project Description</td><td>The IPR Los Gatos Ponds Project would consist of
a) a 25 MGD Advanced Treated Water Facility at the San Jose Water Pollution Control Plant (WPCP),
b) a pump station,
c) 14.5 miles of 30” pipeline from the WPCP to the existing recharge Los Gatos Ponds in Campbell,

To effectively use local water rights, a pipeline connection at the Lexington outlet, or pump station picking up Lexington releases at Vasona would connect to the Rinconada force main and the Stevens Creek raw water pipeline. The pipeline cost is not included in the cost estimate . It is included as a separate project. The use of a pipeline versus a pump station or water transfer is still being studied. Note that a water transfer is also being studied in a separate portfolio for the WSIMP.</td></tr>
<tr><td>Project Location</td><td>The project is located in north Santa Clara County. The source wastewater, advanced water treatment facility, and pump station would be located at the south bay on City of San Jose WPCP lands. The pipeline alignment runs southerly until it meets the central pipeline and then parallels the central pipeline to the Los Gatos Kirk and Page diversions in Campbell. Pipeline interconnections may be necessary between the Page, Budd, Sunnyoak, Camden, McGlincey, and Oka ponds.</td></tr>
<tr><th colspan="2">Project Benefits</th></tr>
<tr><td>Additional Water Supply Yield</td><td>IPR water would be a year-round source available in all year types. Modeled water supply yield is 15,300 acre-feet annually.</td></tr>
<tr><td>Other Benefits</td><td>Please indicate which planning objectives the project meets and describe how the project meets those objectives. Click here to review the Planning Objectives TM, which describes the various objectives.

☒Ensure Supply Reliability
    ☒Meet service area demands
    ☒Maintain a diverse water supply
    ☒Maximize flexibility to respond to change
☐Maximize water use efficiency
☒Ensure Drinking Water Quality
    ☐Maximize surface water treatability
    ☐Meet drinking water regulations
    ☒Protect groundwater quality
☐Minimize Cost Impacts
    ☐Minimize District lifecycle costs
    ☐Minimize community lifecycle costs
☐Protection the Natural Environment
    ☐Provide benefits to watersheds, streams, and natural resources
    ☐Reduce greenhouse gas emissions
☐Ensure Community Benefits</td></tr>
</table>

	☐Provide flood protection and recreational benefits ☐Ensure equitable distribution of benefits ☒Maximize Implementation Potential ☒Maximize District influence over supplies and operations ☐Minimize implementation complexities and barriers Explanation: The project provides a local all- weather, drought proof supplemental supply, diversifies the water supply portfolio, improves groundwater storage conditions, and improves groundwater quality.
Project Costs	
Capital Cost Estimate	$249,380,000
Annual Costs	$8,229,200
Estimated Useful Life	50 Years
Implementation Issues and Other Costs	The feasibility of IPR in the area has not yet been verified. Additional investigation into groundwater retention times and public acceptance is necessary.
Schedule	
Project Precursors	Public outreach; groundwater modeling.
Project Duration	12 Years
Other Information	
Other Information	
References	

Water Master Plan Project Description	
Project Name	Indirect Potable Reuse (IPR) Recharge – Penitencia Ponds
Project Description	This would be a 3 MGD satellite facility, with a pump station, brine line, and distribution pipelines to the ponds. Preferred alternative on 8/2/11 is Capitol site from Alignment D. The project goals are to (1) provide a local all- weather, drought proof supplemental supply (2) diversify the water supply portfolio (2) improve groundwater storage conditions (3) optimize local water rights (4) improve groundwater quality, and (5) minimize environmental effects by leveraging existing facilities. .
Project Location	The project is located in north Santa Clara County. The source wastewater, advanced water treatment facility, and pump station would be located at the south bay on City of San Jose WPCP lands. The pipeline alignment would run easterly into the Alum Rock hills to the Penitencia and Overfelt ponds
Project Benefits	
Additional Water Supply Yield	The estimated water supply yield is 3,000 acre-feet annually. IPR water would be a year-round source available in all year types.
Other Benefits	Please indicate which planning objectives the project meets and describe how the project meets those objectives. Click here to review the Planning Objectives TM, which describes the various objectives. ☒Ensure Supply Reliability ☒Meet service area demands ☒Maintain a diverse water supply ☒Maximize flexibility to respond to change ☐Maximize water use efficiency ☒Ensure Drinking Water Quality ☐Maximize surface water treatability ☐Meet drinking water regulations ☒Protect groundwater quality ☐Minimize Cost Impacts ☐Minimize District lifecycle costs ☐Minimize community lifecycle costs ☐Protection the Natural Environment ☐Provide benefits to watersheds, streams, and natural resources ☐Reduce greenhouse gas emissions ☒Ensure Community Benefits ☒Avoid land subsidence ☐Provide flood protection and recreational benefits ☐Ensure equitable distribution of benefits ☒Maximize Implementation Potential ☒Maximize District influence over supplies and operations ☐Minimize implementation complexities and barriers Explanation: The project provides a local all- weather, drought proof supplemental supply, diversifies the water supply portfolio, improves groundwater

	storage conditions, and improves groundwater quality.
Project Costs	
Capital Cost Estimate	$57,969,578
Annual Costs	O&M = $1,031,037/year Pumping = 135,189/year
Estimated Useful Life	90 years
Implementation Issues and Other Costs	The feasibility of IPR in the area has not yet been verified. Additional investigation into groundwater retention times and public acceptance is necessary.
Schedule	
Project Precursors	Public outreach; agreement with San Jose Water Company
Project Duration	10 Years
Other Information	
Other Information	
References	

Water Master Plan Project Description	
Project Name	Lexington Reservoir Exchange Agreement
Project Description	The general idea of retailer transfers or exchanges was looked at for this project, but only one provides long-term water supply benefits: An exchange with San Jose Water Company for water in Lexington reservoir. SJWC would take Lexington water to treat at its Montevina treatment plant rather than taking treated water or groundwater. This would allow the District to free up processing capacity at RWTP or use an alternate source of water (most likely advanced treated recycled water, as described below) for recharge in the downstream Los Gatos Ponds while maintaining water rights. This project could also work in concert with the Indirect Potable Re-use project for the Los Gatos Pond system. It would allow the District to keep it's water rights for Lexington reservoir while putting IPR water into the downstream ponds. All other retailer transfer or exchanges would be limited to short term supplies since none of the retailers have long term storage capacity. Additionally, the transfers would not be new water for the county. Because of this, other options are more of an emergency back-up option, which would be addressed by the Infrastructure Reliability Project. This project would not require any new infrastructure, but would require developing an agreement with San Jose Water Company.
Project Location	N/A - Agreement
Project Benefits	
Additional Water Supply Yield	WEAP modeling for the system re-operations portfolio shows an average yield of 5,000 AF/Y and a yield of 600 AF in critically dry years.
Other Benefits	Please indicate which planning objectives the project meets and describe how the project meets those objectives. Click here to review the Planning Objectives TM, which describes the various objectives. ☒Ensure Supply Reliability ☐Meet service area demands ☐Maintain a diverse water supply ☒Maximize flexibility to respond to change ☐Maximize water conservation ☐Ensure Drinking Water Quality ☐Maximize surface water treatability ☐Meet drinking water regulations ☐Protect groundwater quality ☒Minimize lifecycle costs ☐Protection the Natural Environment ☐Provide benefits to watersheds, streams, and natural resources ☐Reduce greenhouse gas emissions ☐Ensure Community Benefits

	☐Provide flood protection and recreational benefits ☐Ensure equitable distribution of benefits ☒Maximize Implementation Potential ☒Maximize District influence over supplies and operations ☒Minimize implementation complexities and barriers Explanation: The project would help meet service area demands by providing additional processing capacity. This is an inexpensive supply option, but requires negotiations with San Jose Water Company.
Project Costs	
Capital Cost Estimate	Not Applicable
Annual Costs	Assumed to be neutral. There would be costs associated with administering the agreement, however, the District would receive revenue for the water transferred.
Estimated Useful Life	30 Years
Implementation Issues and Other Costs	District has met with SJWC to discuss this option in the past. The option is technically feasible, but there has been an inability to agree on water rights issues on both sides so far.
Schedule	
Project Precursors	
Project Duration	1-2 years to negotiate an agreement
Other Information	
Other Information	
References	

Water Master Plan Project Description

Project Name	Lexington Pipeline
Project Description	The Lexington Pipeline project would consist of about 1 mile of gravity flow RCP pipeline connecting Vasona Reservoir to a location next to Vasona Pump Station. Water would flow from the Vasona Canal outlet to a new 60" RCP to Vasona Pump Station. This project is needed in combination with a Los Gatos IPR project in order to effectively use water rights.
Project Location	Los Gatos

Project Benefits

Additional Water Supply Yield	Average and dry year yield estimated at 1,500 AF

Other Benefits	Please indicate which planning objectives the project meets and describe how the project meets those objectives. Click here to review the Planning Objectives TM, which describes the various objectives.
	
	☒Ensure Supply Reliability
	    ☒Meet service area demands
	    ☐Maintain a diverse water supply
	    ☒Maximize flexibility to respond to change
	☐Maximize water conservation
	☒Ensure Drinking Water Quality
	    ☒Maximize surface water treatability
	    ☐Meet drinking water regulations
	    ☐Protect groundwater quality
	☐Minimize Cost Impacts
	    ☐Minimize District lifecycle costs
	    ☐Minimize community lifecycle costs
	☐Protection the Natural Environment
	    ☐Provide benefits to watersheds, streams, and natural resources
	    ☐Reduce greenhouse gas emissions
	☐Ensure Community Benefits
	    ☐Provide flood protection and recreational benefits
	    ☐Ensure equitable distribution of benefits
	☒Maximize Implementation Potential
	    ☒Maximize District influence over supplies and operations
	    ☐Minimize implementation complexities and barriers
	
	Explanation:
	The pipeline will increase the District's ability to use existing water supplies and add infrastructure flexibility. The District will have greater control over existing supplies and operations. Pipeline and pump station construction do not face significant implementation issues.

Project Costs

Capital Cost Estimate	$11,450
Annual Costs	*From FY 11 Budget for Raw Water Transmission &Delivery Operations*:

	Raw Water T&D Operations = $959,000 Raw Water T&D Maintenance = $2,056,000 (excluding Recycled Water) Total = $3,015,000 for 94 miles raw water pipe and tunnel $32,000/mile pipeline $32,000/mile pipeline * 1.01 miles = $32,600
Estimated Useful Life	90 Years
Implementation Issues and Other Costs	The feasibility of IPR in the area has not yet been verified. Additional investigation into groundwater retention times and public acceptance is necessary.
Schedule	
Project Precursors	Public outreach; groundwater modeling.
Project Duration	10 Years
Other Information	
Other Information	
References	

<table>
<tr><th colspan="2">Water Master Plan Project Description</th></tr>
<tr><td>Project Name</td><td>Morgan Hill Treatment (Recycled Water)</td></tr>
<tr><td>Project Description</td><td>MBR scalping plant at Hill and Dunne and distribution of recycled water to AIM Golf Course. Yield off of sewer main is limited to about 0.45 MGD.</td></tr>
<tr><td>Project Location</td><td>Morgan Hill</td></tr>
<tr><th colspan="2">Project Benefits</th></tr>
<tr><td>Additional Water Supply Yield</td><td>300 AFY (based on about 200 days per year irrigation at a rate of 0.45 MGD).</td></tr>
<tr><td>Other Benefits</td><td>Please indicate which planning objectives the project meets and describe how the project meets those objectives. Click here to review the Planning Objectives TM, which describes the various objectives.

☒Ensure Supply Reliability
☒Meet service area demands
☒Maintain a diverse water supply
☒Maximize flexibility to respond to change
☐Maximize water use efficiency
☐Ensure Drinking Water Quality
☐Maximize surface water treatability
☐Meet drinking water regulations
☐Protect groundwater quality
☐Minimize Cost Impacts
☐Minimize District lifecycle costs
☐Minimize community lifecycle costs
☐Protection the Natural Environment
☐Provide benefits to watersheds, streams, and natural resources
☐Reduce greenhouse gas emissions
☒Ensure Community Benefits
☐Avoid land subsidence
☐Provide flood protection and recreational benefits
☒Ensure equitable distribution of benefits
☐Maximize Implementation Potential
☐Maximize District influence over supplies and operations
☐Minimize implementation complexities and barriers

Explanation:
Expands the use of recycled water; adds new supply for Morgan Hill area.</td></tr>
<tr><th colspan="2">Project Costs</th></tr>
<tr><td>Capital Cost Estimate</td><td>$28, 804,000</td></tr>
<tr><td>Annual Costs</td><td>$200,000</td></tr>
<tr><td>Estimated Useful Life</td><td>25 years</td></tr>
<tr><td>Implementation Issues and Other Costs</td><td>Depended on finding willing users; potential decrease in future supply due to conservation; alignment used for cost estimate is adjacent to the Santa Clara Conduit.</td></tr>
<tr><th colspan="2">Schedule</th></tr>
</table>

Project Precursors	
Project Duration	5 years, including planning, design, and construction
Other Information	
Other Information	Morgan Hill has expressed interest in recycled water in Morgan Hill, for both potable and non-potable uses. This project could be expanded to include advanced treatment and recycled water delivery to the San Pedro Ponds (along the alignment used for planning). Anticipated costs for the two alternatives (tertiary vs. advanced treatment) are similar. Advanced recycled water treatment would provide other benefits (groundwater protection, flexibility to response to change because additional source of recharge water), but would also have issues with brine disposal. Yields would probably be less due to RO reject losses.
References	MBR treatment plant costs requested by Morgan Hill as part of adopting the South County Recycled Water Master Plan and from the Recycled Water Mater Plan.

Water Master Plan Project Description	
Project Name	Pacheco Reservoir Expansion
Project Description	The proposed Pacheco Reservoir Alternative would include a new reservoir with a capacity of either 50 or 80 TAF, a new earthen dam, a pump station, a 10-foot diameter conduit connecting to the Pacheco Conduit, access improvements, and some institutional changes. A portion of the supply would be reserved for Pacheco Pass Water District and flood control. Additionally, moving water from San Luis Reservoir to Pacheco Reservoir would provide additional storage capacity in San Luis Reservoir, which could increase deliveries to all CVP contractors. Originally two dam sites were evaluated for larger capacity reservoir options (80 TAF and 130 TAF). The lower site named Pacheco A was found to have potentially extensive landslides and weak foundation materials. The upper site, Pacheco B, introduced the risk of flooding a portion of Henry Coe State Park. The SCVWD Board established that impacts to State Park lands must be avoided. With smaller reservoir size options, modeling results confirmed that no State Park land would be inundated under either a 50 or 80 TAF option. The new embankment dam would be constructed at the Pacheco B site along Pacheco Creek, upstream from the existing North Fork Pacheco Dam. The earth fill structure would be constructed with an impervious core using random fill material and rock fill. The dam would feature a chimney, drain, and a blanket drain. Valves would be located in the gate chamber vault beneath the crest of the dam. The dam would be equipped with a gravity spillway including an uncontrolled side channel spillway, control weir, stilling basin, and trapezoidal channel discharge chute. These items would be constructed of reinforced concrete. The side channel spillway would be a 300 foot long ogee weir. After discharging from the stilling basin, flows would be routed through a riprap lined outlet channel into Pacheco Creek.
Project Location	North Fork Dam and Pacheco Reservoir located on North Fork Pacheco Creek in Santa Clara and San Benito Counties
Project Benefits	
Additional Water Supply Yield	Average Annual Yield for Expanded Pacheco Reservoir 50TAF Reservoir = 10TAF and 80TAF Reservoir =17TAF ** Active Storage for 50TAF Reservoir = 30TAF 80TAF Reservoir = 55TAF **The average annual yield estimates are low because they are based on available exports in the Delta. If we were to manage Pacheco Reservoir for our benefit we would manage it much differently and could possible store more of our CVP water, SWP water, transfer water, etc. These

	other sources were not considered in the SLLPIP.

Other Benefits	Please indicate which planning objectives the project meets and describe how the project meets those objectives. Click here to review the Planning Objectives TM, which describes the various objectives.
	☒Ensure Supply Reliability
	    ☒Meet service area demands
	    ☒Maintain a diverse water supply
	    ☒Maximize flexibility to respond to change
	☐Maximize water use efficiency
	☒Ensure Drinking Water Quality
	    ☒Maximize surface water treatability
	    ☐Meet drinking water regulations
	    ☐Protect groundwater quality
	☐Minimize Cost Impacts
	    ☐Minimize District lifecycle costs
	    ☐Minimize community lifecycle costs
	☐Protection the Natural Environment
	    ☐Provide benefits to watersheds, streams, and natural resources
	    ☐Reduce greenhouse gas emissions
	☒Ensure Community Benefits
	    ☒Avoid land subsidence
	    ☐Provide flood protection and recreational benefits
	    ☐Ensure equitable distribution of benefits
	☒Maximize Implementation Potential
	    ☒Maximize District influence over supplies and operations
	    ☐Minimize implementation complexities and barriers
	Explanation:
	Adds operational and supply diversity by adding a new reservoir
	Additional watershed storage can improve flood protection capacities
	Maximizes district influence if district owns and operates the new facility and enters into an operating agreement with Pacheco Pass Water District and possibly the San Benito County Water District.

Project Costs	
Capital Cost Estimate	Expanded Pacheco Reservoir- 50 TAF Option -$622 million 80 TAF Option -$720 million 2010 SLRLPIP estimates of $542M and $627M were adjusted to 2011 costs and original factor of 25% for design, CM and closeout adjusted to 40% for consistency with other cost estimates.
Annual Costs	Expanded Pacheco Reservoir - 50TAF: $6,132,000 80TAF: $ 6,723,000
Estimated Useful Life	Useful life for the new facilities used in the economic analysis was 100 years.

Implementation Issues and Other Costs	Access to privately held land; environmental and related permitting issues; potential water rights issues
Schedule	
Project Precursors	Federal 10% Level of Design report Feasibility Study
Project Duration	Feasibility Study 9/2012
Other Information	
Other Information	
References	

Water Master Plan Project Description	
Project Name	South County Recycled Water – SCRWA to Morgan Hill
Project Description	Expands the South County Recycled Water system to Morgan Hill by constructing a 13 mile pipeline from Gilroy to Morgan Hill and about 3 miles of distribution pipeline in Morgan Hill.
Project Location	Llagas Groundwater Subbasin
Project Benefits	
Additional Water Supply Yield	769 AFY all-weather supply

Other Benefits	Please indicate which planning objectives the project meets and describe how the project meets those objectives. Click here to review the Planning Objectives TM, which describes the various objectives.
	☒Ensure Supply Reliability
	  ☒Meet service area demands
	  ☒Maintain a diverse water supply
	  ☒Maximize flexibility to respond to change
	☐Maximize water use efficiency
	☐Ensure Drinking Water Quality
	  ☐Maximize surface water treatability
	  ☐Meet drinking water regulations
	  ☐Protect groundwater quality
	☐Minimize Cost Impacts
	  ☐Minimize District lifecycle costs
	  ☐Minimize community lifecycle costs
	☐Protection the Natural Environment
	  ☐Provide benefits to watersheds, streams, and natural resources
	  ☐Reduce greenhouse gas emissions
	☐Ensure Community Benefits
	  ☐Avoid land subsidence
	  ☐Provide flood protection and recreational benefits
	  ☒Ensure equitable distribution of benefits
	☒Maximize Implementation Potential
	  ☒Maximize District influence over supplies and operations
	  ☐Minimize implementation complexities and barriers
	Explanation:
	Would help meet demands in Morgan Hill by providing recycled water; maximizes flexibility to respond to change since Morgan Hill would have increased reliability during shortages; provides Morgan Hill with recycled water benefits.

Project Costs	
Capital Cost Estimate	$43,836,000
Annual Costs	$150,000
Estimated Useful Life	40 years
Implementation Issues and Other Costs	Possibly infeasible due to high cost; potential to increase TDS in groundwater but reduce nitrate.

Schedule	
Project Precursors	
Project Duration	6 years for planning, design, and construction.
Other Information	
Other Information	Morgan Hill is interested in recycled water, though SCRWA agencies have a preference for wastewater treatment in Morgan Hill.
References	Based on information from South County Recycled Water Master Plan.

Water Master Plan Project Description	
Project Name	Recycled Water Regional Connector (Non-Potable)
Project Description	This project would be a recycled water regional connector from the South Bay Water Recycling system to supplement recycled water distributed in Sunnyvale. The regional connector is a 12-inch pipeline, ranging in cost from $2M - $2.5M depending on the final alignment. Reason for this connector: In the past few years, recycled water production from Sunnyvale's treatment plant has been sporadic, with their treatment coming from batch production of recycled water. Their recycled water deliveries have decreased from year to year. The District's water supply portfolio planning depends on a certain baseline quantity being maintained. It is in the District's interest to have reliability in the recycled water delivered in Sunnyvale's service area. In the past, when Sunnyvale's batch mode treatment did not produce sufficient amounts of recycled water, the recycled water system was supplemented with SFPUC water. With SFPUC water rates increasing substantially, Sunnyvale has incurred increased payments to SFPUC plus experienced recycled water revenue loss. In the future, Sunnyvale could install groundwater wells to supplement their recycled water with groundwater instead of recycled water. However, this is not a sustainable practice in dry year types, since the District seeks to conserve groundwater for higher purposes. It is also in the District's interest to maximize recycled water used in the county. This regional connector would not only increase the reliability of the system plus it would allow for potential additional 500 acre-feet of recycled water per year in increased sales, and the District does have a financial arrangement in the sale of SBWR recycled water). It is also in the District's interest to provide for equitable benefits throughout the county. The regional connector could allow for potential expansion of recycled water service into Cupertino (this will be a separate pipeline with a conceptual cost of $10M and was included in SBWR's 5-year CIP. The additional increase in use in Cupertino is not available at this point).
Project Location	The location for a regional connector could potentially be in the proximity of the borders between the cities of Sunnyvale and Santa Clara
Project Benefits	
Additional Water Supply Yield	This regional connector would provide for 500 acre-feet of nonpotable water in all year types (i.e. includes dry year yield)
Other Benefits	Please indicate which planning objectives the project meets and describe how the project meets those objectives. Click here to review the Planning Objectives TM, which describes the various objectives.

	☒Ensure Supply Reliability ☒Meet service area demands ☐Maintain a diverse water supply ☒Maximize flexibility to respond to change ☐Maximize water use efficiency ☐Ensure Drinking Water Quality ☐Maximize surface water treatability ☐Meet drinking water regulations ☐Protect groundwater quality ☐Minimize Cost Impacts ☐Minimize District lifecycle costs ☐Minimize community lifecycle costs ☐Protection the Natural Environment ☐Provide benefits to watersheds, streams, and natural resources ☐Reduce greenhouse gas emissions ☒Ensure Community Benefits ☐Avoid land subsidence ☐Provide flood protection and recreational benefits ☒Ensure equitable distribution of benefits ☒Maximize Implementation Potential ☒Maximize District influence over supplies and operations ☐Minimize implementation complexities and barriers Explanation:
Project Costs	
Capital Cost Estimate	The capital cost estimate (conceptual) is between $2M-$2.5 M depending on the final alignment. This information is based on preliminary meetings with SBWR and Sunnyvale staff.
Annual Costs	Revenue: estimated at $187,000 per year, half of which would be to the District Return on investment 9.4% • Assumes O&M for the project is regional connector will be included in SBWR & AWT O&M annual cost. • Assumes Sunnyvale purchases 500 acre-feet of recycled water per year. • Assumes revenue based on FY11 SBWR rate of $375/AF. • Assume recycled water rate increase in the future offsets inflation • Assume revenue will be shared 50/50 between SBWR and the District per Integration Agreement Cupertino pipeline extension not included in the above. The regional connector could provide the opportunity for the Cupertino extension.
Estimated Useful Life	30 year life

Implementation Issues and Other Costs	
Schedule	
Project Precursors	
Project Duration	Start date can be estimated at FY 13 based on SBWR 5 year CIP information (Shared at Recycled Water Policy Advisory Committee Meeting on 4/21/11)
Other Information	
Other Information	
References	

Water Master Plan Project Description	
Project Name	Regional Desalination
Project Description	The Bay Area Regional Desalination Project would consist of one or more facilities, with an estimated capacity range of 20 to 71 million gallons per day (MGD), depending on the final number and location of the facilities. The project goals are to (1) provide additional source of water during emergencies such as earthquakes or levee failures; (2) provide a supplemental water supply source during extended droughts; (3) allow other major facilities, such as treatment plants, water pipelines, and pump stations, to be taken out of service for maintenance or repairs; (4) increase water supply reliability for multiple agencies through the sharing of a regional facility; and (5) minimize environmental effects by leveraging existing facilities and regional interties.
Project Location	The Eastern Contra Costa sites could provide up to 20 MGD desalinated water and other locations which include near the current EBMUD's outfall and Bay Bridge, and/or (2) near Carquinez Bridge for the capacity beyond 20 MGD and up to 71 MGD.
Project Benefits	
Additional Water Supply Yield	The project will provide 10 MGD (11,200 AFY not including evaporation losses) during the hydrologic years that are classified as critical dry years based on San Joaquin Valley Index (1 in 5 years or 20% chance). Actual yield may be less, because water may be stored in Los Vaqueros Reservoir and subject to evaporation losses.

Other Benefits	Please indicate which planning objectives the project meets and describe how the project meets those objectives. Click here to review the Planning Objectives TM, which describes the various objectives.
	☒Ensure Supply Reliability
	    ☒Meet service area demands
	    ☐Maintain a diverse water supply
	    ☒Maximize flexibility to respond to change
	☐Maximize water use efficiency
	☐Ensure Drinking Water Quality
	    ☐Maximize surface water treatability
	    ☐Meet drinking water regulations
	    ☐Protect groundwater quality
	☐Minimize Cost Impacts
	    ☐Minimize District lifecycle costs
	    ☐Minimize community lifecycle costs
	☐Protection the Natural Environment
	    ☐Provide benefits to watersheds, streams, and natural resources
	    ☐Reduce greenhouse gas emissions
	☒Ensure Community Benefits
	    ☒Avoid land subsidence
	    ☐Provide flood protection and recreational benefits
	    ☐Ensure equitable distribution of benefits
	☒Maximize Implementation Potential
	    ☒Maximize District influence over supplies and operations

	☐Minimize implementation complexities and barriers Explanation: This water would be provided through exchanges with participating agencies. The District would not receive desalinated water directly. However, assuming the mechanisms for exchanges to occur, this project would provide additional supply during dry years (which helps meet service area demands) and provide us with more opportunities for responding to shortages.
Project Costs	
Capital Cost Estimate	$32,790,000 Based on total project cost estimate being shared equally by 5 partners.
Annual Costs	1. Water right cost = $45/AF; 2. Annual O$M $475/AF; 3. Wheeling cost (Via EBMUD system to Hayward Intertie for HH water exchange) = $725/AF (this cost is specific to SCVWD/SFPUC only). Critically Dry Year Annual Costs = $1,245/AF * 11,200 AF = $13,944,000 Other Year Annual Costs = $45/AF * 11,200 AF = $504,000
Estimated Useful Life	50 years
Implementation Issues and Other Costs	Desal projects typically have opposition on environmental issues This project relies on a partnership between five agencies Actual yield may be less is evaporation losses.
Schedule	
Project Precursors	
Project Duration	10+ years for design and construction. Planning has been in process since about 2003.
Other Information	
Other Information	
References	

Water Master Plan Project Description

Project Name	Revise Treated Water Contracts
Project Description	The District has treated water contracts with seven retailer customers: San Jose Water Company (SJWC), California Water Services Company (Cal Water), City of Mountain View, City of Sunnyvale, City of Santa Clara, City of Milpitas, and City of San Jose Municipal Water System (San Jose Muni). This project includes four possible contract changes:

1. Change Rates of Flow Requirement: The contracts stipulate the following:

   Every three years, the retailers provide a delivery schedule with annual contract amounts for a three-year period. The retailers also provide a proposed monthly delivery schedule each fiscal year. The treated water contracts require the District to provide the following:

   - The total annual amount of treated water in the approved delivery schedule
   - In each month, at least 15 percent of the total annual amount in the approved delivery schedule
   - For an aggregate of 72 hours in any month, an instantaneous flow rate equivalent to 205 percent of the current annual amount in the approved delivery schedule expressed as an equivalent uniform flow rate over the full year (i.e., convert annual amount to MGD * 205%)
   - The District may limit the maximum flow rate to 180% of the current annual amount in the approved delivery schedule expressed as an equivalent uniform flow rate over the full year (i.e., convert annual amount to MGD * 180%) with reasonable prior notice.

   Staff calculated future water treatment system capacity needs based on the 180% peaking factor and on the 15% of the total annual amount in any one month (assuming a 30 day month). Although the District is required to provide a 205% instantaneous flow rate, the District may limit the maximum flow rate to 180% with reasonable prior notice. The 15% of the total annual amount in any one month provides higher maximum daily demands. As such, this contract requirement was used to calculate future WTP capacity needs, shown in the table below.

Treated Water System Capacity Requirements for Future Years (MGD)

	2015	2020	2025	2030	2035
West	74	82	82	81	81
East	124	126	133	142	153

This project proposes to change the contractual flow requirements so that current District plant capacity does not need to be increased to meet future peak flow rate requirements .

2. Limit Future Delivery Schedule Increases: The retailers propose a delivery schedule every three years. While there are no contractual limits on increases to treated water deliveries, the District does have the authority to approve or deny the retailer's delivery schedule. By limiting increases to the retailers' future delivery schedules, the District could control treated water demand increases. This concept may not require an actual contract revision, as the contract already calls for the District to approve the delivery schedules. One part of the contract that could be eliminated or changed in support of this concept is that the District can't provide or approve less than 95% of the maximum from the prior three years, unless approved in writing.

   Limiting future delivery schedule increases could eliminate or reduce the need for the District to expand the treated water system while maintaining the current maximum flow requirements. Note that this concept would only decrease or limit treated water demand, not total county demand. As such, increases in demand would be shifted to another source such as groundwater or recycled water.

3. Changing Provisions for Availability of Water (Treated Deliveries) and Revising Rate Structure: If the District must reduce treated water deliveries due to drought or other uncontrollable circumstances such as earthquake or disaster, the current contracts call for proportional reductions for all retailers, meaning all retailers' allotments are reduced by the same percentage. The contracts could be changed so that retailer allotments are reduced by different percentages, depending on a variety of factors including availability of alternate supplies, type of customers, or other criteria. In essence, this will provide increased reliability to some retailers. In conjunction with increased reliability, rates would need to be re-negotiated to match the added reliability for certain retailers.

   Changing provisions for availability of water may allow the District to better plan for water shortage contingency efforts and better manage future supply shortfalls. This would also help the District to better identify specific areas of the system where reliability improvements are needed or desired. Changing the rate structure would improve financing of system improvements, and would allow for those who benefit from improvements to pay for them.

4. Changing Provisions for Availability of Water (Groundwater Recharge): The contracts have provisions for the availability of water. If there is a water shortage due to drought or other uncontrollable reason, the District first must reduce or cease deliveries of untreated

	water for groundwater recharge, second reduce or cease deliveries of agricultural water, and finally, make reductions to treated water deliveries. Reductions to treated water deliveries would be proportional among all retailers. Since south county does not receive treated water, their supplies could be impacted more by a water shortage. The contracts could be changed to provide more of a balance between north county treated water deliveries and south county groundwater recharge deliveries in the case of a water shortage. It should be noted that the contracts were developed prior to completion of the San Felipe Division and imported water deliveries to south county for recharge.
Project Location	N/A - Administrative
Project Benefits	
Additional Water Supply Yield	These contract changes will not increase water supplies, but will allow the District to reduce or eliminate the need to expand treatment plant capacity and to better manage future supply shortfalls.
Other Benefits	Please indicate which planning objectives the project meets and describe how the project meets those objectives. Click here to review the Planning Objectives TM, which describes the various objectives. ☒Ensure Supply Reliability ☒Meet service area demands ☐Maintain a diverse water supply ☒Maximize flexibility to respond to change ☐Maximize water use efficiency ☐Ensure Drinking Water Quality ☐Maximize surface water treatability ☐Meet drinking water regulations ☐Protect groundwater quality ☒Minimize Cost Impacts ☒Minimize District lifecycle costs ☐Minimize community lifecycle costs ☒Protection the Natural Environment ☒Provide benefits to watersheds, streams, and natural resources ☒Reduce greenhouse gas emissions ☒Ensure Community Benefits ☐Avoid land subsidence ☐Provide flood protection and recreational benefits ☒Ensure equitable distribution of benefits ☒Maximize Implementation Potential ☒Maximize District influence over supplies and operations ☒Minimize implementation complexities and barriers Explanation: • Change Maximum Flow Rate Requirement: Allows District to meet future treated water demands without needing to expand the treated water system or limit future contract increases

	- Limit Future Delivery Schedule Increases: Allows District to meet future treated water demands without needing to expand the treated water system or change maximum flow rate requirements - Changing Provisions for Availability of Water and Revising Rate Structure: Allows District to better manage future supply shortfalls, to identify specific areas of the system where improvements are desired or needed, and to improve financing of system improvements. - All three contract changes should be relatively easy to implement, as long as retailers were willing to negotiate their contracts.
Project Costs	
Capital Cost Estimate	Approx $400,000 for initial contract re-negotiations
Annual Costs	No additional O&M beyond what is already required for current contracts. Assume $5000 per year admin costs.
Estimated Useful Life	70 Years (current contract life)
Implementation Issues and Other Costs	- The current contract terms are still valid for about 40 years. Opening existing contracts could be risky for both District and retailers as the agreements are functioning well now. - Change Maximum Flow Rate Requirement and Limiting Future Delivery Schedule Increases: These suggested changes could reduce treated water revenue and put additional strain on groundwater resources or other resources such as recycled water. - Changing Provisions for Availability of Water and Revising Rate Structure: This suggested change could be difficult to negotiate between retailers and difficult to implement and maintain.
Schedule	
Project Precursors	None
Project Duration	Should start by 2025 for east side contracts.
Other Information	
Other Information	The seven contracts are basically the same, were executed in the early 1980s, and are in effect for a period of 70 years, which extends beyond the planning horizon. The treated water retailers pay a “basic water charge” (the zone W-5 groundwater charge) plus a treated water surcharge per acre-foot. All retailers pay the same amount for each acre-foot of contract water.
References	

Water Master Plan Project Description	
Project Name	Saratoga Creek Recharge Pond
Project Description	Construct approximately 5 acres of 5 foot deep ponds on a 9-acre parcel located between Saratoga Creek and Saratoga Avenue, immediately north of Highway 85. Water could be turned out of the Stevens Creek Pipeline into Saratoga Creek and diverted to the ponds about 1,500 feet downstream.
Project Location	Saratoga Creek and Highway 85
Project Benefits	
Additional Water Supply Yield	Recharge Capacity: Estimated at 10 acre-feet per day or 3,650 AFY. Conservative estimate is 2 af/ac/day. Results from WEAP model (recommended portfolio – local sustainability) = 3300 Average year, 2100 extended drought
Other Benefits	Please indicate which planning objectives the project meets and describe how the project meets those objectives. Click here to review the Planning Objectives TM, which describes the various objectives. ☒Ensure Supply Reliability ☒Meet service area demands ☐Maintain a diverse water supply ☒Maximize flexibility to respond to change ☐Maximize water conservatoin ☒Ensure Drinking Water Quality ☐Maximize surface water treatability ☐Meet drinking water regulations ☒Protect groundwater quality ☒Minimize lifecycle costs ☐Protect the Natural Environment ☐Provide benefits to watersheds, streams, and natural resources ☐Reduce greenhouse gas emissions ☐Ensure Community Benefits ☐Provide flood protection and recreational benefits ☐Ensure equitable distribution of benefits ☒Maximize Implementation Potential ☒Maximize District influence over supplies and operations ☒Minimize implementation complexities and barriers Explanation: Increases groundwater recharge capacity, which supports maintaining groundwater reserves. The added infrastructure increases our flexibility to respond to change. Added groundwater recharge with high quality water improves groundwater quality. Recharge ponds are a relatively low cost project. New ponds are relatively easy to implement and are under District control.
Project Costs	
Capital Cost Estimate	$20,260,000

Annual Costs	$50,000 per year. The cost estimate is based on projected operations and maintenance costs for all 64 District recharge facilities. Costs range from $2.9 - $3.7 Million per year, or $45K - $58K per facility per year. $50K is a good average.
Estimated Useful Life	90 years
Implementation Issues and Other Costs	
Schedule	
Project Precursors	Includes property purchase
Project Duration	7 years
Other Information	
Other Information	
References	

Water Master Plan Project Description	
Project Name	South County Water Treatment Plant
Project Description	This project would construct a small (5 MGD) water treatment facility (package plant) in Morgan Hill. The facility would use reverse osmosis treatment, or a similar advanced treatment technology. Groundwater management studies into the operational groundwater storage capacity of the Llagas Subbasin indicate that storage is less than previously estimated, especially in the Morgan Hill area. Adding surface water treatment maximizes conjunctive use of the groundwater basin by providing an alternative delivery system with the groundwater subbasin is “full” and additional recharge would not be put to beneficial use. The plant would be located adjacent to the District’s Main Avenue Ponds. The source of water would be the Santa Clara Conduit or, once the Main and Madrone Pipeline Rehabilitation Project is complete, Anderson Reservoir. The water would be delivered to the City of Morgan Hill’s Nob Hill pressure zone via the water mains on Hill Road or Main Avenue. The project components for this plant would include: • 5 MGD Package Plant • Small pump station • Land Acquisition An additional or alternative location could be developed to take advantage of yield if Uvas Reservoir is expanded. However, this would increase costs dramatically because significant piping would be required.
Project Location	Morgan Hill, Main Avenue and Hill Road
Project Benefits	
Additional Water Supply Yield	This project does not provide any additional water supply; however, it provides an additional 5 MGD of processing capacity in the Morgan Hill area and increases reliability of raw water deliveries to Morgan Hill by making Morgan Hill a treated water retailer. Also, maximizes efficient use of available supplies and groundwater storage. Groundwater modeling performed as part of the South County Water Supply Planning Project indicated that a surface water treatment plant delivering about 3,765 AFY would result in less subsurface flow leaving the groundwater subbasin. If Anderson Reservoir is expanded, could also provide additional processing capacity necessary to put additional supplies to beneficial use.
Other Benefits	Please indicate which planning objectives the project meets and describe how the project meets those objectives. Click here to review the Planning Objectives TM, which describes the various objectives. ☒Ensure Supply Reliability

	☐Meet service area demands ☐Maintain a diverse water supply ☒Maximize flexibility to respond to change ☐Maximize water use efficiency ☒Ensure Drinking Water Quality ☐Maximize surface water treatability ☒Meet drinking water regulations ☐Protect groundwater quality ☐Minimize Cost Impacts ☐Minimize District lifecycle costs ☐Minimize community lifecycle costs ☐Protection the Natural Environment ☐Provide benefits to watersheds, streams, and natural resources ☐Reduce greenhouse gas emissions ☒Ensure Community Benefits ☐Avoid land subsidence ☐Provide flood protection and recreational benefits ☒Ensure equitable distribution of benefits ☒Maximize Implementation Potential ☒Maximize District influence over supplies and operations ☐Minimize implementation complexities and barriers Explanation: Would increase deliveries of raw water to the Morgan Hill area, helping the District meet future demands in the area. Provides more operational flexibility and redundancy/reliability in the Llagas groundwater system, which increases ability to respond to change. Helps maintain a diverse water supply by adding another source of treated water. Project will provide treated water that meets all regulations. This project is related to District owned infrastructure, and maximizes District influence. This project would be relatively easy to implement due to the fact it could be constructed on District land and is a smaller project.
Project Costs	
Capital Cost Estimate	$15,525,000 The cost would be significantly higher if the plant is located further from raw and treated water pipelines due to the pipeline and increased land acquisition costs.
Annual Costs	For 5 MGD, O&M costs would be approximately $350,000.
Estimated Useful Life	25 years
Implementation Issues and Other Costs	None Identified
Schedule	
Project Precursors	Possibly Main and Madrone Pipeline Rehabilitation Project.

Project Duration	Project would take approximately 5 years from planning through construction.
Other Information	
Other Information	
References	

Water Master Plan Project Description	
Project Name	Stevens Creek Reservoir Pipeline
Project Description	This project would provide a pipeline from Stevens Creek Reservoir connecting to the raw water distribution system (Stevens Creek Pipeline). This would allow excess water in the Stevens Creek watershed to be used in the West side raw water distribution system for recharge in creeks along the Stevens Creek Pipeline or west side ponds. Note that the elevation difference between the reservoir and pipeline is sufficient for gravity flow. No pumping would be required. The pipeline would be approximately 9,700 ft long (1.85 miles) and 24" diameter. It could carry up to 15 cfs at an average velocity of 5fps. A current CIP project, Stevens Creek Supplemental Water, is planning to construct this pipeline; however, the project is in the planning phase and a preferred alternative has not been selected. The goal of the CIP project is to bring cold water to the base of Stevens Creek Dam in accordance with the Fisheries and Aquatic Habitat Collaborative Effort (FAHCE) settlement agreement and the Habitat Conservation Plan (HCP). If this project moves forward, it would be beneficial to construct a pipeline suitable for both purposes.
Project Location	Stevens Creek Reservoir to Stevens Creek Pipeline – specific pipeline alignment has not been determined. Pipeline length was estimated as shortest distance between the two points.
Project Benefits	
Additional Water Supply Yield	• Based on WEAP modeling results for the system re-operations portfolio, average yield is 4,700 AF. Dry year yield is 100 AF.
Other Benefits	Please indicate which planning objectives the project meets and describe how the project meets those objectives. Click here to review the Planning Objectives TM, which describes the various objectives. ☒Ensure Supply Reliability ☒Meet service area demands ☐Maintain a diverse water supply ☒Maximize flexibility to respond to change ☐Maximize water use efficiency ☐Ensure Drinking Water Quality ☐Maximize surface water treatability ☐Meet drinking water regulations ☐Protect groundwater quality ☒Minimize Cost Impacts ☒Minimize District lifecycle costs ☐Minimize community lifecycle costs ☒Protection the Natural Environment ☐Provide benefits to watersheds, streams, and natural resources ☒Reduce greenhouse gas emissions ☒Ensure Community Benefits

	☒Provide flood protection and recreational benefits ☐Ensure equitable distribution of benefits ☒Maximize Implementation Potential ☒Maximize District influence over supplies and operations ☐Minimize implementation complexities and barriers Explanation: • Pipeline provides infrastructure to use water when it would otherwise spill. This increases ability to meet demands and maximizes flexibility to respond to change. • The pipeline could help with flood protection by diverting water that may spill or be released to the creek to the raw water system. • As a local supply option, this maximizes District influence.
Project Costs	
Capital Cost Estimate	$10,046,250
Annual Costs	*From FY 11 Budget for Raw Water Transmission &Delivery Operations*: Raw Water T&D Operations = $959,000 Raw Water T&D Maintenance = $2,056,000 (excluding Recycled Water) Total = $3,015,000 for 94 miles raw water pipe and tunnel $32,000/mile pipeline $32,000/mile pipeline * 1.85 miles = $59,000
Estimated Useful Life	90 Years
Implementation Issues and Other Costs	Water is typically available in the winter months when it is not needed as much and there is nowhere to process it. It would work better in combination with additional storage or groundwater processing capacity.
Schedule	
Project Precursors	None
Project Duration	Project would take approximately 8-10 years from planning through construction.
Other Information	
Other Information	
References	

Water Master Plan Project Description

Project Name	South County Recharge – Upper Madrone
Project Description	This project includes extending the Madrone Pipeline 3,500 ft north along Madrone Channel and constructing a spreader dam in the channel. This would increase recharge capacity in Madrone Channel.
Project Location	Morgan Hill, Upper Llagas Creek Watershed

Project Benefits

Additional Water Supply Yield	Recharge Capacity: 1,650 AFY
Other Benefits	Please indicate which planning objectives the project meets and describe how the project meets those objectives. Click here to review the Planning Objectives TM, which describes the various objectives. ☒Ensure Supply Reliability ☒Meet service area demands ☐Maintain a diverse water supply ☐Maximize flexibility to respond to change ☐Maximize water use efficiency ☒Ensure Drinking Water Quality ☐Maximize surface water treatability ☐Meet drinking water regulations ☒Protect groundwater quality ☒Minimize Cost Impacts ☒Minimize District lifecycle costs ☐Minimize community lifecycle costs ☒Protection the Natural Environment ☒Provide benefits to watersheds, streams, and natural resources ☒Reduce greenhouse gas emissions ☐Ensure Community Benefits ☐Avoid land subsidence ☐Provide flood protection and recreational benefits ☐Ensure equitable distribution of benefits ☒Maximize Implementation Potential ☒Maximize District influence over supplies and operations ☒Minimize implementation complexities and barriers Explanation: Increases recharge capacity.

Project Costs

Capital Cost Estimate	$4,152,739
Annual Costs	$25,000
Estimated Useful Life	90 years
Implementation Issues and Other Costs	Spreader dam may be an issue with regard to compliance with FEMA requirements

Schedule

Project Precursors	Madrone Pipeline Restoration
Project Duration	4 years, including planning, design, etc.
Other Information	
Other Information	
References	

<table>
<tr><th colspan="2">Water Master Plan Project Description</th></tr>
<tr><td>Project Name</td><td>Uvas Reservoir Expansion</td></tr>
<tr><td>Project Description</td><td>Expand Uvas Reservoir from 9,835 to approximately 15,000 AF. This project would also provide seismic retrofit of the dam if required at the same time as dam expansion.

An increase to 15,000 AF corresponds to the following increases:
Dam raises from 118 ft high to 165 ft. high (47 ft. raise)
Normal max water surface elevation raises from 487.5 ft. to 534.5 ft.</td></tr>
<tr><td>Project Location</td><td>Uvas Reservoir</td></tr>
<tr><th colspan="2">Project Benefits</th></tr>
<tr><td>Additional Water Supply Yield</td><td>Increase in local storage of 15000 AF due to dam expansion
Increase in yield of:
Dry = 0 AF
Normal = 6,140 AF
Wet = 15,000 AF</td></tr>
<tr><td>Other Benefits</td><td>Please indicate which planning objectives the project meets and describe how the project meets those objectives. Click here to review the Planning Objectives TM, which describes the various objectives.

☒Ensure Supply Reliability
    ☒Meet service area demands
    ☒Maintain a diverse water supply
    ☒Maximize flexibility to respond to change
☐Maximize water use efficiency
☒Ensure Drinking Water Quality
    ☒Maximize surface water treatability
    ☐Meet drinking water regulations
    ☐Protect groundwater quality
☐Minimize Cost Impacts
    ☐Minimize District lifecycle costs
    ☐Minimize community lifecycle costs
☐Protection the Natural Environment
    ☐Provide benefits to watersheds, streams, and natural resources
    ☐Reduce greenhouse gas emissions
☒Ensure Community Benefits
    ☐Avoid land subsidence
    ☒Provide flood protection and recreational benefits
    ☐Ensure equitable distribution of benefits
☒Maximize Implementation Potential
    ☒Maximize District influence over supplies and operations
    ☐Minimize implementation complexities and barriers

Explanation:
Additional storage adds ability to meet demands, maintains a diverse (local) water supply, and maximizes flexibility to respond to change,</td></tr>
</table>

	particularly climate change. • Possible increased recreation on Uvas, and project could include new campgrounds, parks, trails, etc. around the reservoir. • As a local supply option, this maximizes District influence • Uvas reservoir currently spills frequently in wet years. There is excess local water in the watershed that could be captured at put to beneficial use.
Project Costs	
Capital Cost Estimate	$250,000,000 assuming a construction cost of $130M, with a 30% estimating contingency and a 50% contingency for planning, design, etc, based on: • A construction cost estimate of $92 M was provided in the 2003 IWRP. This corresponds to about $115 (3% inflation) - $130M (5% inflation) in 2011 dollars, which is in-line with Calero and Anderson estimated expansion costs. • Anderson construction costs are estimated at $159M and Calero construction costs are estimated at $138M. • In comparison, o The SFPUC Calaveras Dam Replacement is estimated at $250M construction cost, which would be approx. $400M total capital. o The Pacheco Reservoir expansion studied in the San Luis Reservoir Low Point Improvement Project is estimated at $542 M for a 50 TAF expansion and $627 M for an 80 TAF expansion.
Annual Costs	Current Dam O&M costs are $450,000 per dam based on Long Term Forecast for Dam O&M projects. This project results in a net $0 increase in O&M costs for the District.
Estimated Useful Life	100 years
Implementation Issues and Other Costs	• An expansion could inundate parts of Uvas road, Eastman Canyon Road, 5-10 residences, and several parcels. • Additional recharge capacity in the Uvas system and/or a pipeline connecting the reservoir to the distribution system could provide the same benefits as a reservoir expansion, but at a lower cost. Each of these options allows the District to process the excess wet year water. These projects could also be done in conjunction with the reservoir expansion to maximize processing capacity. • The project will have mitigation costs associated with the three-creeks HCP. • Permitting and environmental mitigation could make implementation very difficult • The dam would likely require the following work at the same time as seismic upgrade: Hydraulic operating system upgrades, intake structure and inlet/outlet pipe rehab. • The dam may require improvements to the spillway and freeboard at the same time as seismic upgrade.

Schedule	
Project Precursors	- Dam Seismic Stability Evaluation - Three Creeks HCP
Project Duration	Approximately 10 year duration.
Other Information	
Other Information	
References	

Water Master Plan Project Description	
Project Name	Uvas Pipeline
Project Description	This project would provide a pipeline from Uvas reservoir connecting to the raw water distribution system (Santa Clara Conduit) upstream of Coyote Pump Station and of the Main, Madrone, and San Pedro Ponds. This would allow excess water in the Uvas watershed to be used in the South County ponds, the raw water system, or stored in Anderson or Calero reservoirs. A small booster pump station providing 50 – 100 ft of head would be needed. A Pipeline from the Uvas Reservoir Outlet to the Santa Clara Conduit would be approximately 14,000 ft long (2.65 miles) and 60" diameter. It could carry up to 80 cfs at an average velocity of 5fps. A second pipeline alignment was reviewed that uses the existing Uvas/Llagas transfer pipeline, then a new pipeline from the Uvas/Llagas PL to the Santa Clara Conduit. This is not being considered for the WSIMP as it does not maximize supply due to the smaller size of the existing Uvas/Llagas transfer pipeline. This alternative could be re-considered during capital project planning. The new pipeline would be approximately 8,500 ft long (1.61 miles) and 36" diameter (diameter of existing Uvas/Llagas pipeline). It could carry up to 35 cfs at an average velocity of 5 fps.
Project Location	Uvas Reservoir to Santa Clara Conduit – specific pipeline alignment has not been determined. Pipeline length was estimated as shortest distance between the two points.
Project Benefits	
Additional Water Supply Yield	Based on WEAP modeling results for the system re-operations portfolio, the average yield is 12,400 AFY. The dry year yield is 1000 AFY.
Other Benefits	Please indicate which planning objectives the project meets and describe how the project meets those objectives. Click here to review the Planning Objectives TM, which describes the various objectives. ☒Ensure Supply Reliability ☒Meet service area demands ☐Maintain a diverse water supply ☒Maximize flexibility to respond to change ☐Maximize water use efficiency ☒Ensure Drinking Water Quality ☒Maximize surface water treatability ☐Meet drinking water regulations ☐Protect groundwater quality ☒Minimize Cost Impacts ☒Minimize District lifecycle costs ☐Minimize community lifecycle costs ☐Protection the Natural Environment ☐Provide benefits to watersheds, streams, and natural resources

	☐Reduce greenhouse gas emissions ☒Ensure Community Benefits ☒Provide flood protection and recreational benefits ☐Ensure equitable distribution of benefits ☒Maximize Implementation Potential ☒Maximize District influence over supplies and operations ☐Minimize implementation complexities and barriers Explanation: • Pipeline provides infrastructure to use water when it would otherwise spill. This increases ability to meet demands and maximizes flexibility to respond to change. • The pipeline could help with flood protection by diverting water that may spill or be released to the creek to the raw water system. • As a local supply option, this maximizes District influence.
Project Costs	
Capital Cost Estimate	$46,090
Annual Costs	*From FY 11 Budget for Raw Water Transmission &Delivery Operations*: Raw Water T&D Operations = $959,000 Raw Water T&D Maintenance = $2,056,000 (excluding Recycled Water) Total = $3,015,000 for 94 miles raw water pipe and tunnel $32,000/mile pipeline $32,000/mile pipeline * 2.65 miles = $85,000
Estimated Useful Life	90 Years
Implementation Issues and Other Costs	Water is typically available in the winter months when it is not needed as much and there is nowhere to process it. It would work better in combination with additional storage or groundwater processing capacity.
Schedule	
Project Precursors	None
Project Duration	Project would take approximately 8-10 years from planning through construction.
Other Information	
Other Information	See attachment for cost estimates.
References	

Water Master Plan Project Description	
Project Name	West Side Intertie with SFPUC
Project Description	This project extends the West Pipeline approximately 29,500 ft from Granger Turnout to Page Mill Road to connect to the SFPUC Bay Division pipelines #3 and 4. This project would provide capability to convey 50 MGD of water from SFPUC to the District's system. This project includes the following components: • Total of 15 miles new pipeline: o Parallel West Pipeline from RWTP to Granger Turnout (9.3 miles) o 29,500 ft (5.7 miles) 54" diameter welded steel pipeline extension from Granger Turnout to Page Mill Road • Intertie Pump station • Intertie with SFPUC BDPLs #3 and 4 at Page Mill Road Hydraulic modeling of the system was done in a 2003 "West Pipeline Extension Conceptual Evaluation Final Report" for the added capacity of 50 MGD from the intertie. The hydraulic modeling found that the added capacity would require paralleling or upsizing the entire existing West Pipeline from RWTP to the pipeline end due to system hydraulics. The West Pipeline doesn't have the capacity to convey future treated water demands plus the added 50 MGD from the intertie. However, if the intertie was limited to an emergency back-up supply, the parallel pipeline may not be needed. The system would not have to be capable of providing the future demand plus 50 MGD. The 50 MGD would be conveyed in lieu of whatever portion of demand could not be delivered by RWTP and the existing west system. Although the previous study examined the feasibility of a 50 MGD connection, smaller connections may be more feasible. Several smaller intertie connections were studied in the Infrastructure Reliability Project (IRP) in 2005. These included a connection to the Mountain View Distributary, a connection to the Santa Clara Distributary, and a connection to the Sunnyvale Distributary. These connections would all provide around 20-25 MGD. Hydraulic studies have not been done to determine whether these options would require upsizing or paralleling existing pipelines. The IRP report recommended the 50 MGD option over other smaller options, but did not recommend investing in the project.
Project Location	West Pipeline, Granger Turnout to Page-Mill Road
Project Benefits	
Additional Water Supply Yield	This project does not provide any additional water supply. This project could result in increased demand due to new service connections along a

	West Pipeline extension. (See below under ‘other information’.) At best, this project could provide emergency back-up supply from SFPUC; however, emergency supplies would only be available for local system outages such as maintenance shutdowns or an isolated pipeline break or leak incident. SFPUC supplies would not likely be available during regional emergencies such as drought or earthquake, just as SCVWD supplies would not be available to SFPUC during such times.
Other Benefits	Please indicate which planning objectives the project meets and describe how the project meets those objectives. Click here to review the Planning Objectives TM, which describes the various objectives. ☒Ensure Supply Reliability ☐Meet service area demands ☐Maintain a diverse water supply ☒Maximize flexibility to respond to change ☐Maximize water use efficiency ☐Ensure Drinking Water Quality ☐Maximize surface water treatability ☐Meet drinking water regulations ☐Protect groundwater quality ☐Minimize Cost Impacts ☐Minimize District lifecycle costs ☐Minimize community lifecycle costs ☒Protection the Natural Environment ☒Provide benefits to watersheds, streams, and natural resources ☐Reduce greenhouse gas emissions ☐Ensure Community Benefits ☐Avoid land subsidence ☐Provide flood protection and recreational benefits ☐Ensure equitable distribution of benefits ☒Maximize Implementation Potential ☒Maximize District influence over supplies and operations ☒Minimize implementation complexities and barriers Explanation: This project could provide some redundancy on the West side of the District’s treated water system, which maximizes flexibility to respond to change.
Project Costs	
Capital Cost Estimate	$252,163,000 Note: previous cost estimate was only $95M. This was a 2003 estimate, did not include earthwork (trenching, etc.) or land acquisition, and only included 30% contingency for capital planning, design, construction & close out. Cost without parallel West Pipeline is $112 M.

Annual Costs	From FY 11 Budget for Raw Water Transmission &Delivery Operations: Treated Water T&D Operations = $959,000 Treated Water T&D Maintenance = $2,056,000 (excluding Recycled Water) Total = $1,422,000 for 40 miles treated water pipe $35,500/mile pipeline * 15 miles = $532,500 Intertie O&M = $230,000 Total Annual O&M = $762,000
Estimated Useful Life	90 Years
Implementation Issues and Other Costs	• The goals of this project need to be clarified. This project is somewhat feasible as an emergency back-up supply project, but not as a continued operations supply project. • If new service connections and increased demand are still desired (see below under 'other information'), this project will have the following issues: o A parallel pipeline the entire length of the West Pipeline will have to be installed to provide enough capacity for the system o This project would worsen the future supply outlook as it adds demand but not supply o There is an added cost associated with developing additional supplies to meet increased demand. o The retailers asking for new service connections did not pay into the existing system o It is not fair that the existing retailers would have to pay for new service connections or for developing new supplies to serve new customers. • It would be extremely costly for the District to develop supplies that could provide additional supply for drought conditions to Palo Alto and Stanford (see below under 'other information'). The District will not have extra supplies to provide in drought. • This project could provide emergency back-up supply from SFPUC; however, emergency supplies would only be available for local system outages such as maintenance shutdowns or an isolated pipeline break or leak incident. SFPUC supplies would not likely be available during regional emergencies such as drought or earthquake, just as SCVWD supplies would not be available to SFPUC during such times. • The District is expected to use its CVP and SWP allocations in Santa Clara County. Any transfer of water to SFPUC would have to be approved by the State Water Board, which would be extremely difficult. Emergency use only may be OK.
Schedule	
Project Precursors	None

Project Duration	8 – 10 years due to implementation issues discussed above.
Other Information	
Other Information	The "West Pipeline Extension Conceptual Evaluation Final Report" dated March 2003 was a result of requests from 5 retailers including the City of Palo Alto, City of Mountain View, Purissima Hills, Cal Water, and Stanford University. The retailers goals for the project are described below. It is unknown whether these goals are still valid. The report identified a net increase in demand from new customer connections related to these requests of 26.2 MGD. It is unknown whether this demand increase is still valid. • Stanford and Palo Alto wanted emergency back-up supplies and added supplies for droughts • Purissima Hills wanted emergency back-up supplies, with a possibility of a normal take or pay contract • Mountain view wanted to ensure its system pressures would not be affected by a new intertie • Cal Water wanted some of its existing supplies delivered farther north in the county. The WSIMP would not typically address emergency back-up supplies, as this is addressed by the Infrastructure Reliability Program.
References	• West Pipeline Extension Conceptual Evaluation Final Report, March 2003 • Water Infrastructure Reliability Report, May 2005

Water Master Plan Project Description	
Project Name	West Side Package WTPs
Project Description	This project would add 2 small water treatment facilities on the West side of the system. The facilities would use reverse osmosis filtration treatment, or a similar advanced treatment technology. The package plants would add processing capacity to the west side of the District's water distribution system. The plants would process excess water in Stevens Creek reservoir in the winter months. (Unfortunately, the water in Stevens Creek reservoir is available only in the winter when treated water demand is low.) The excess capacity is equivalent to approximately 6-7 MGD. Two small 5 MGD plants could process this water. This project could also be adapted to be used with Indirect Potable Re-Use project. In this case, the plants would treat imported water that would typically be used for groundwater recharge. The District would send advanced treated recycled water to the groundwater basin in lieu of the imported water. The two plants would be located along the west pipeline. There are three locations at higher elevations farther from the pipeline. • San Antonio Park. This site is owned by the County of Santa Clara and is located near Foothill Expressway and I-280 . This site has been identified as an ideal location for a treated water storage tank. • Stevens Creek County Park. This site is owned by the County of Santa Clara and is located just downstream of Stevens Creek Reservoir. • Fremont Older Open Space. This site is partially owned by the County of Santa Clara and partially owned by the Mid-Peninsula Open Space District. The project components for these sites would include: • 10,000 ft 20" pipeline (5,000 ft delivery main and 5,000 ft force main) • 5 MGD Package Plant • Land Acquisition There are also three locations closer to the pipeline on SCVWD fee or easement: • 1.7 Acres easement along Prospect Creek • 2.9 Acres Fee at Stevens Creek and Highway 85 • 1.7 Acres Fee at Tee of Sunnyvale Distributary and West PL The project components for these sites would include:

	- 500 ft. 20” pipeline (250 delivery/250 force main) - 5 MGD Package Plant - Small Booster Pump Station These sites are on average $10M less expensive due to the lower cost of pipeline connecting the plants to the distribution system.
Project Location	Locations are noted in project description above.
Project Benefits	
Additional Water Supply Yield	This project does not provide any additional water supply; however, it provides an additional 10 MGD of processing capacity. It should be used in combination with another project such as the Stevens Creek Reservoir and Pipeline connection or Indirect Potable Re-use. This project could also help the District meet peak treated water demands in the future.
Other Benefits	Please indicate which planning objectives the project meets and describe how the project meets those objectives. Click here to review the Planning Objectives TM, which describes the various objectives. ☒Ensure Supply Reliability ☒Meet service area demands ☐Maintain a diverse water supply ☐Maximize flexibility to respond to change ☐Maximize water use efficiency ☒Ensure Drinking Water Quality ☐Maximize surface water treatability ☒Meet drinking water regulations ☐Protect groundwater quality ☒Minimize Cost Impacts ☒Minimize District lifecycle costs ☐Minimize community lifecycle costs ☐Protection the Natural Environment ☐Provide benefits to watersheds, streams, and natural resources ☐Reduce greenhouse gas emissions ☐Ensure Community Benefits ☐Avoid land subsidence ☐Provide flood protection and recreational benefits ☐Ensure equitable distribution of benefits ☒Maximize Implementation Potential ☒Maximize District influence over supplies and operations ☐Minimize implementation complexities and barriers Explanation: Provides more operational flexibility and redundancy/reliability on the West side of the system, which increases ability to respond to change. Helps maintain a diverse water supply by adding another source of

	treated water. Project will provide treated water that meets all regulations. This project is related to District owned infrastructure, and maximizes District influence. This project would be relatively easy to implement due to the fact it could be constructed on District land and is a smaller project.
Project Costs	
Capital Cost Estimate	Cost estimate is based on the lower cost alternative of placing package plants closer to the pipeline and adding a booster pump station. $20,824,000 This is the total cost for three (3) plants. Cost per plant is approximately $10 M. If plants are located farther from pipelines, Cost would be approximately $44,000,000 or $22 M per plant. The cost is much greater due to the increased pipeline and land acquisition costs.
Annual Costs	Annual costs are based on District O&M costs for STWTP since it is the District's newest plant. Total annual O&M costs for STWTP are approximately $7M/year. This correlates to approximately $70,000 per MGD. For 10 MGD, O&M costs would be approximately $700,000
Estimated Useful Life	25 years
Implementation Issues and Other Costs	None Identified
Schedule	
Project Precursors	Possibly Stevens Creek Supplemental Water Supply System/Stevens Creek Pipeline-Reservoir Connection Possibly Indirect Potable Re-use
Project Duration	Project would take approximately 5-8 years from planning through construction.
Other Information	
Other Information	
References	

APPENDIX K

Economic Analysis

WSIMP Economic Analysis - Benefit-Cost Summary

Analysis Assumptions

Discount Rate	2.5%	
Analysis Period	50	years
Imp.Water Annual Purchase & O&M Cost	$ 957	per AF (includes SWP avg yield adj 60%, 25% trans losses)
Imp. Water Purchase Expected Ann. Inflation	9.0%	
Cost of Dry Year Option Purchase	$ 450	per AF (includes 25% transmission losses)
Dry Year Option Expected Ann. Inflation	4.0%	
Sales Price for Semitropic water	$ 300	per AF (no transmission losses)

Imported Water Risks

- Imported water price increase risk,
- Imported water availability risk (allocation)
- Imported water supply disruption risk (e.g. seismic, levee failure)
- Imported water policy risk (e.g. court decrees)
- Imported water increased transaction costs

Present Value Analysis Summary (2011 Dollars)

Strategy	Projects	Project Costs	Total Costs (Project Costs plus External Costs)	Benefits	Benefit-Cost Ratio
Minimize Costs		$ 74,431,381	$ 77,048,720	$ 214,355,966	2.78
	39. Dry Year Option - 40K	$ 69,768,824	$ 69,768,824	$ 98,727,900	
	1. Graywater Use	$ 2,506,815	$ 3,488,317	$ 48,015,643	
	34. Recycled Water Connector	$ 2,155,742	$ 3,791,579	$ 67,612,423	
Maximize System Flexibility		$ 220,071,692	$ 381,735,493	$ 768,563,101	2.01
	25. Calero Expansion	$ 105,358,878	$ 105,358,878	$ 7,208,435	
	23. Uvas Pipeline	$ 32,390,718	$ 120,072,780	$ 375,719,427	
	22. Stevens Creek Pipeline	$ 7,890,714	$ 42,141,520	$ 145,532,248	
	15. Exchange with SJWC	$ -	$ 34,250,805	$ 102,346,919	
	39. Dry Year Option - 40K	$ 69,768,824	$ 69,768,824	$ 116,575,374	
	1. Graywater Use	$ 2,506,815	$ 4,561,863	$ 8,709,810	
	34. Recycled Water Connector	$ 2,155,742	$ 5,580,823	$ 12,470,887	
Ensure Sustainability		$ 419,890,024	$ 444,406,439	$ 981,913,022	2.21
	17. Los Gatos IPR	$ 358,339,091	$ 378,615,825	$ 638,085,829	
	38. Lexington Pipeline	$ 8,566,984	$ 11,331,993	$ 68,296,775	
	3. Saratoga Recharge Pond	$ 11,997,242	$ 11,997,242	$ 139,056,502	
	40. Dry Year Option - 15 KAF*	$ 36,324,150	$ 36,324,150	$ 40,077,923	
	1. Graywater Use	$ 2,506,815	$ 3,059,817	$ 11,852,006	
	34. Recycled Water Connector	$ 2,155,742	$ 3,077,412	$ 16,861,723	
	8.Semitropic Reoperations	$ -	$ -	$ 67,682,264	

Benefit Summary - Present Value

Strategy	Projects	Improved Water Supply Reliability	Avoided Long Term Imported Water	Increased Local Control	Avoided Social Cost of Carbon	Improved GW Quality	Maximize Surface Water Treatability/ Low Point Treatment Cost Savings	Reduced Wastewater Discharge to South Bay	Helps Meet Fishery Flow Requirements	Improved Flood Control or Recreation
Minimize Costs		$ 101,437,222	$ 112,813,452		$ 105,291					
	39. Dry Year Option - 40K	$ 98,727,900	$ -	– –						
	1. Graywater Use	$ 1,041,203	$ 46,933,970	+	$ 40,470			+		
	34. Recycled Water Connector	$ 1,668,119	$ 65,879,482	+	$ 64,821			+		
Maximize System Flexibility		$ 126,812,916	$ 641,242,469		$ 502,911		$ 4,804			
	25. Calero Expansion	$ -	$ 7,198,793	+	$ 4,838		$ 4,804		+	+
	23. Uvas Pipeline	$ 4,279,032	$ 371,174,781	+ +	$ 265,614		+			+
	22. Stevens Creek Pipeline	$ 427,903	$ 144,990,149	+ +	$ 114,196		+		+ maybe	
	15. Exchange with SJWC	$ 2,331,507	$ 99,913,916	+ +	$ 101,496					
	39. Dry Year Option - 40K	$ 116,575,374	$ -	– –						
	1. Graywater Use	$ 1,229,426	$ 7,473,939	+	$ 6,445			+		
	34. Recycled Water Connector	$ 1,969,673	$ 10,490,892	+	$ 10,322			+		
Ensure Sustainability		$ 127,134,058	$ 787,004,058		$ 92,641					
	17. Los Gatos IPR	$ 70,509,198	$ 567,663,831	+ +	$ (87,201)	+		+	+	
	38. Lexington Pipeline	$ 5,884,424	$ 62,363,233	+ +	$ 49,118					
	3. Saratoga Recharge Pond	$ 7,729,630	$ 131,220,188	+ +	$ 106,684	+				
	40. Dry Year Option - 15 KAF*	$ 40,077,923	$ -	–						
	1. Graywater Use	$ 1,127,119	$ 10,715,647	+	$ 9,240			+		
	34. Recycled Water Connector	$ 1,805,765	$ 15,041,159	+	$ 14,800			+		

External Cost Summary - Present Value

Strategy	Projects	Increased Wet Year Imported Water Flows to the Bay	Public and/or Regulatory Acceptance	Environmental impacts and transportation infrastructure relocation	Stranded Asset Potential ?
Minimize Costs		$ 2,617,339			
	39. Dry Year Option - 40K	$ -			
	1. Graywater Use	$ 981,502			
	34. Recycled Water Connector	$ 1,635,837			
Maximize System Flexibility		$ 161,663,802			
	25. Calero Expansion	$ -	–	–	
	23. Uvas Pipeline	$ 87,682,062			
	22. Stevens Creek Pipeline	$ 34,250,805			
	15. Exchange with SJWC	$ 34,250,805			
	39. Dry Year Option - 40K	$ -			
	1. Graywater Use	$ 2,055,048			
	34. Recycled Water Connector	$ 3,425,081			
Ensure Sustainability		$ 24,516,415			
	17. Los Gatos IPR	$ 20,276,734.03	– –		–
	38. Lexington Pipeline	$ 2,765,009			
	3. Saratoga Recharge Pond	$ -			
	40. Dry Year Option - 15 KAF*	$ -			
	1. Graywater Use	$ 553,002			
	34. Recycled Water Connector	$ 921,670			

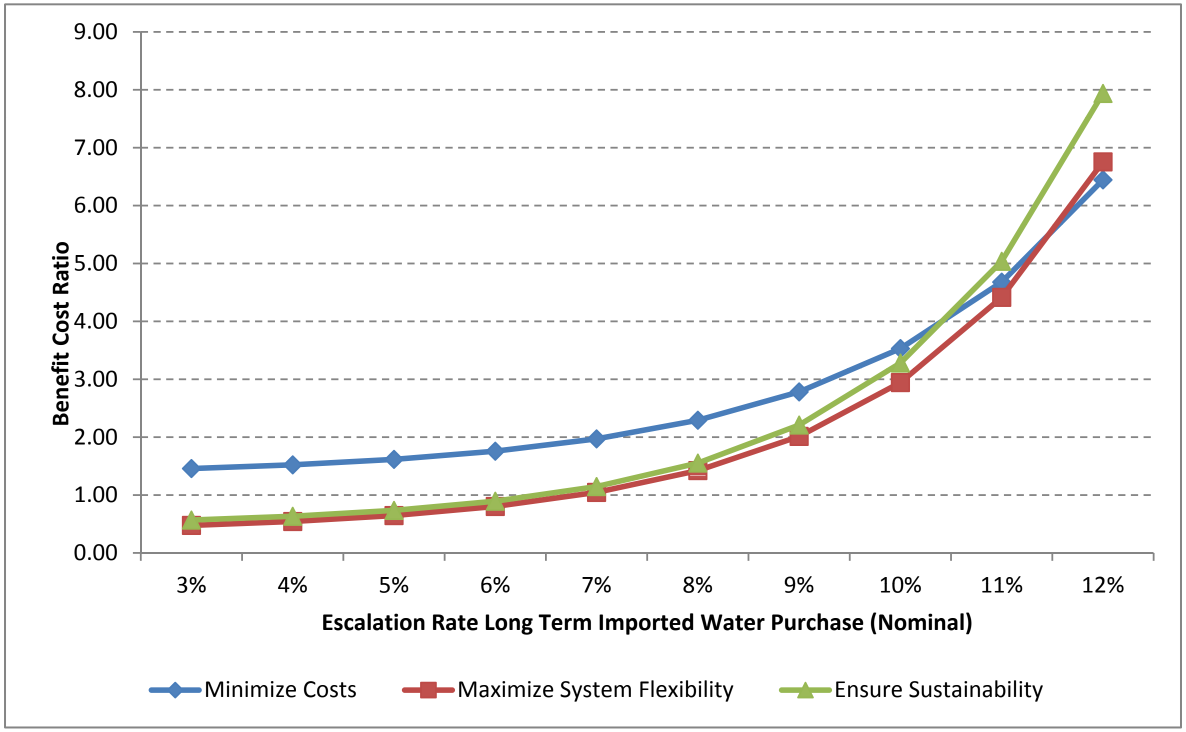
Triple Bottom Line Summary (Millions of $2011)

Portfolio	*Financial Bottom Line*	*Social Bottom Line*	*Environmental Bottom Line*
Minimize Costs	$ 35.8	$ 101.4	$ 0.105
Maximize System Flexibility	$ 259.5	$ 126.8	$ 0.503
Ensure Sustainability	$ 410.3	$ 127.1	$ 0.093

Bottom Line Contents :	***Financial Bottom Line***	***Social Bottom Line***	***Environmental Bottom Line***
	Monetized	*Monetized*	*Monetized*
	Capital & O&M Cost	Increased Water Supply Reliability	Avoided Carbon Emissions
	Semitropic Water Mktg Revenues	*Qualitative*	Qualitative
	Avoided Cost LongTerm Imported Water	Increased Local Control	Improved Groundwater Quality
	Maximize Surface Water Treatability	Improved Flood Control	Reduced Wastewater Discharge to South Bay
	Increased Wet Year Imported Water to Bay	Improved Recreation	Helps Meet Fishery Flow Requirements

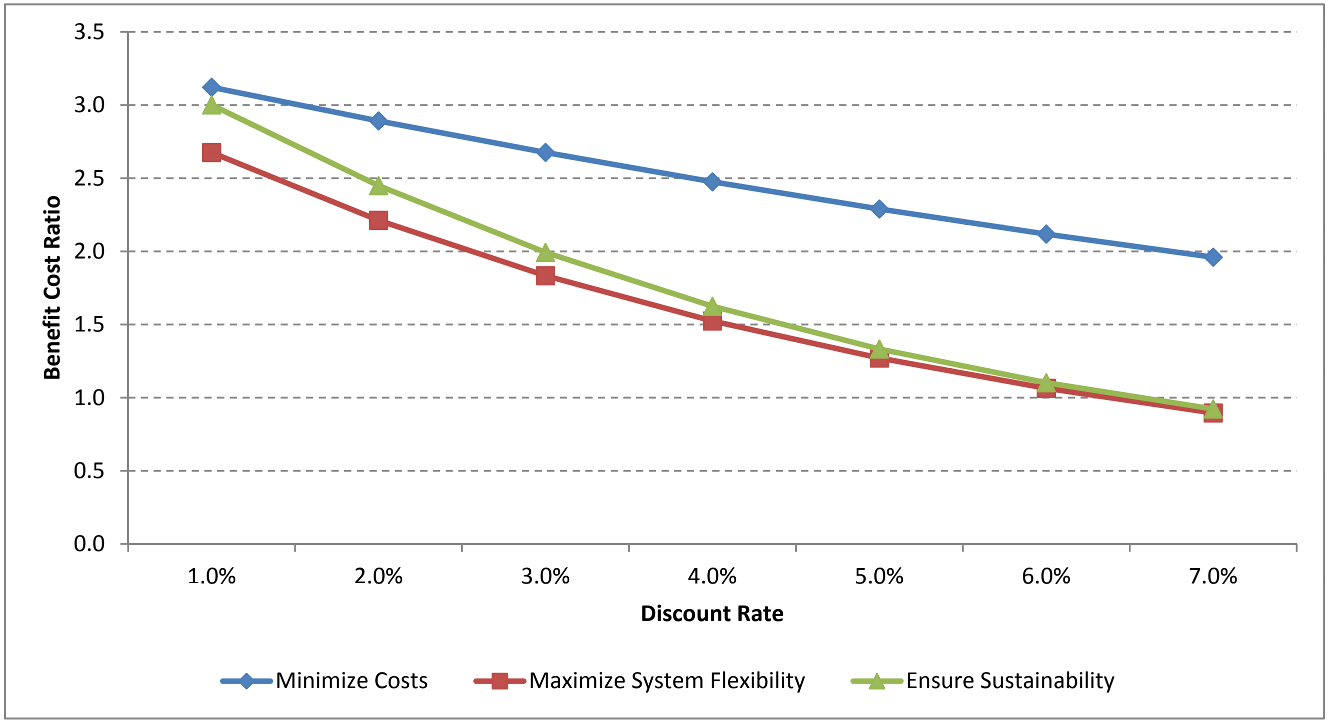
1. Sensitivity Analsyis of Benefit Cost Ratio for WSIMP Portfolios When Varying Escalation Rate for Purchase of Long-Term Imported Water Contract

Portfolio	Escalation Rate (nominal)									
	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%
Minimize Costs	1.46	1.52	1.62	1.76	1.97	2.29	2.78	3.53	4.68	6.44
Maximize System Flexibility	0.48	0.54	0.65	0.80	1.05	1.42	2.01	2.94	4.42	6.76
Ensure Sustainability	0.57	0.63	0.73	0.89	1.15	1.55	2.21	3.28	5.04	7.94



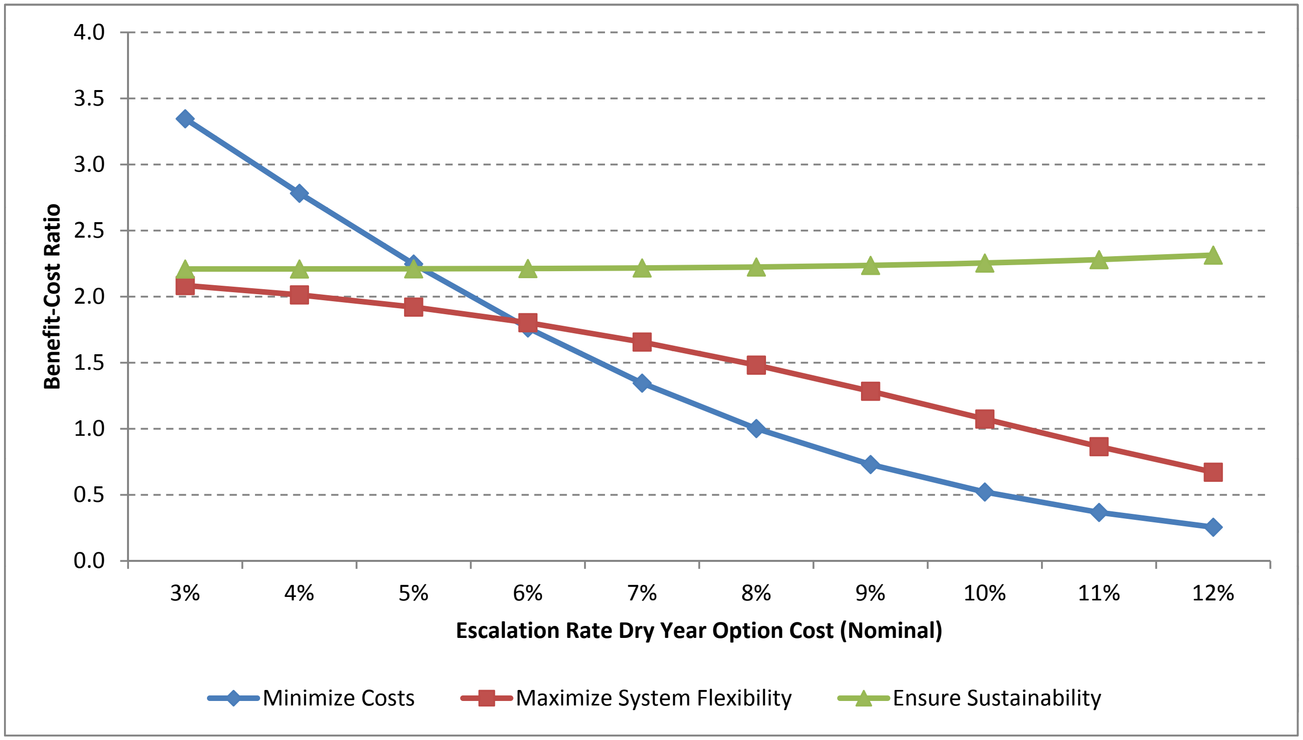
2. Senitivity Analsyis of Benefit Cost Ratio for WSIMP Portfolios When Varying the Discount Rate

Portfolio	Discount Rate (real)						
	1.0%	2.0%	3.0%	4.0%	5.0%	6.0%	7.0%
Minimize Costs	3.1	2.9	2.7	2.5	2.3	2.1	2.0
Maximize System Flexibility	2.7	2.2	1.8	1.5	1.3	1.1	0.9
Ensure Sustainability	3.0	2.4	2.0	1.6	1.3	1.1	0.9



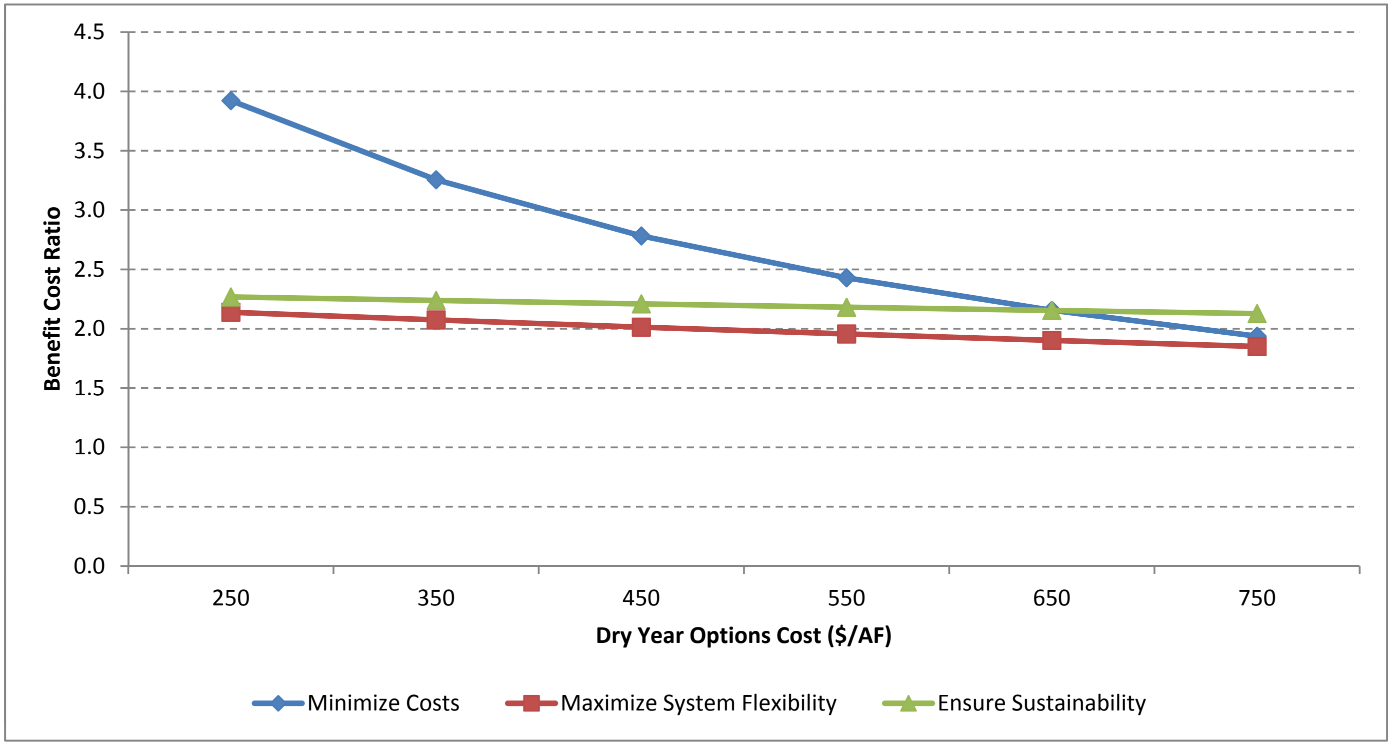
3. Sensitivity Analsyis of Benefit Cost Ratio for WSIMP Portfolios When Varying the Escalation Rate for Dry Year Option Cost/Revenue

Portfolio	Escalation Rate (nominal)									
	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%
Minimize Costs	3.3	2.8	2.2	1.8	1.3	1.0	0.7	0.5	0.4	0.3
Maximize System Flexibility	2.1	2.0	1.9	1.8	1.7	1.5	1.3	1.1	0.9	0.7
Ensure Sustainability	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3



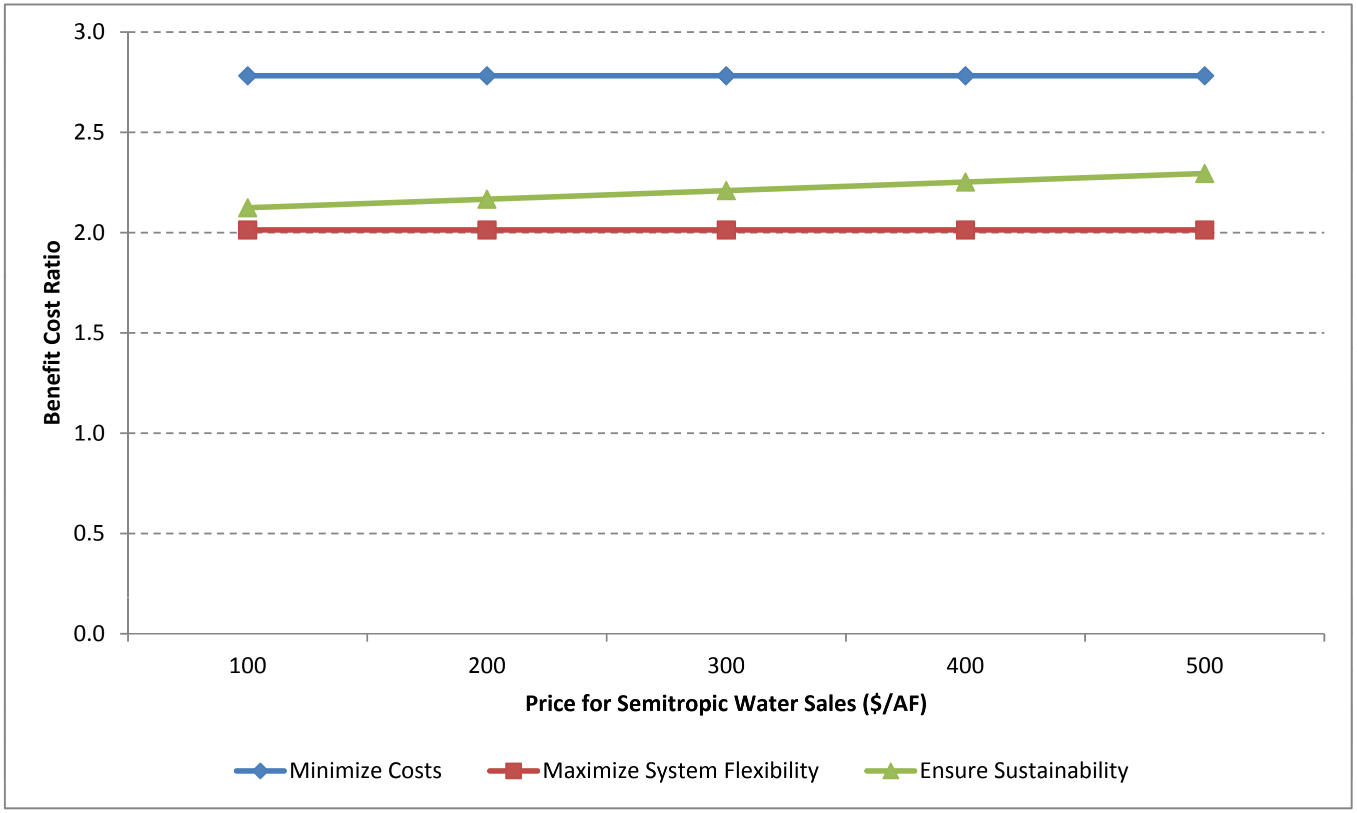
4. Sensitivity Analsyis of Benefit Cost Ratio for WSIMP Portfolios When Varying the Cost of Dry Year Options

Portfolio	Dry Year Option Cost ($/AF)					
	250	350	450	550	650	750
Minimize Costs	3.9	3.3	2.8	2.4	2.2	1.9
Maximize System Flexibility	2.1	2.1	2.0	2.0	1.9	1.9
Ensure Sustainability	2.3	2.2	2.2	2.2	2.2	2.1



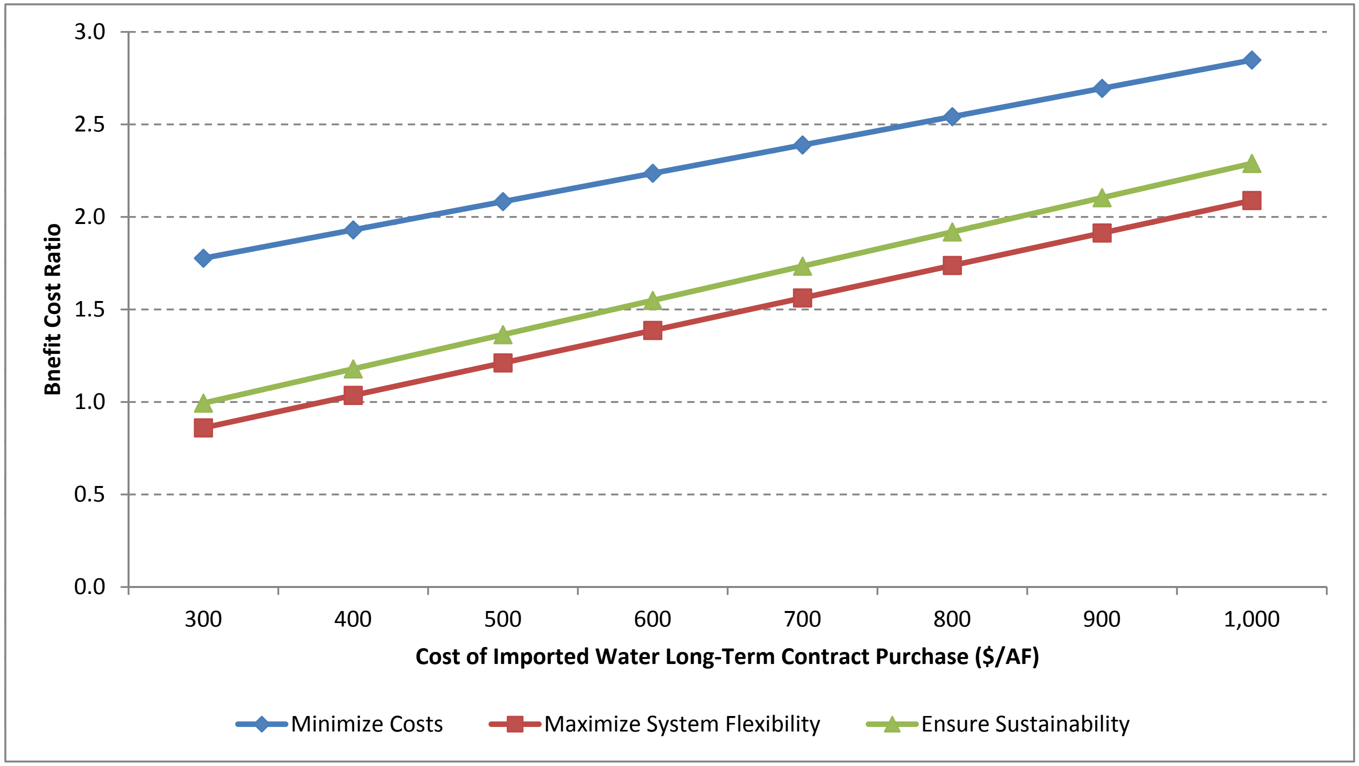
5. Sensitivity Analsyis of Benefit Cost Ratio for WSIMP Portfolios When Varying the Price for Semitropic water sales

Portfolio	Price for Semitropic Water Sales				
	100	200	300	400	500
Minimize Costs	2.8	2.8	2.8	2.8	2.8
Maximize System Flexibility	2.0	2.0	2.0	2.0	2.0
Ensure Sustainability	2.1	2.2	2.2	2.3	2.3



6. Sensitivity Analsyis of Benefit Cost Ratio for WSIMP Portfolios When Varying the Cost of Imported Water Long-Term Contract Purchase

Portfolio	Cost of Long-Term Contract for Imported SWP Water Purchase							
	300	400	500	600	700	800	900	1,000
Minimize Costs	1.8	1.9	2.1	2.2	2.4	2.5	2.7	2.8
Maximize System Flexibility	0.9	1.0	1.2	1.4	1.6	1.7	1.9	2.1
Ensure Sustainability	1.0	1.2	1.4	1.5	1.7	1.9	2.1	2.3



APPENDIX L

Economic Analysis of Water Shortage in Santa Clara County

BEC Berkeley Economic Consulting

Memorandum

Date: February 24, 2010

To: Joan Maher

From: David Sunding

RE: Economic Analysis of Water Shortage in Santa Clara County

Berkeley Economic Consulting developed a model to determine the impact of Santa Clara Valley Water District water shortages on employment and sales revenues in Santa Clara County. We calculate impacts for ten, twenty and thirty percent rationing scenarios. Impacts are disaggregated by the industrial and commercial sectors and between the northern and southern regions of Santa Clara County.

We find that employment impacts range from approximately $262 million in payroll losses (under a ten percent reduction scenario) to $4.1 billion (under a thirty percent reduction scenario). A ten percent shortage results in over 3,000 lost jobs and a thirty percent shortage in almost 53,000 lost jobs. Sales revenue is decreased by approximately $883 million, given ten percent rationing, and by more than $10 billion, given thirty percent rationing. This memo describes the methodology and data sources and presents the impacts by sector and region.

Methodology

Employment and sales revenue impacts were determined under various water reduction scenarios. We relied on the following data sources:

- US Census 2007 County Business Patterns data – Data on number of establishments available by zip code, by NAICS code. Total payroll and number of employees data available by zip code.
- UC Census 2002 Economic Census data – Total sales revenues data available by county.
- MHB Consultants Study[1] - Industrial and commercial elasticities reported in the study are for 0% to 15% and 15% to 30% reductions in water supply.

We used a GIS to analyze the revenue and payroll losses in the northern and southern portions of Santa Clara County. The north-south delineation was based on Metcalf Road. Zip codes lying north of Metcalf Road were assigned to the North County Region and zip codes lying south of Metcalf Road were assigned to the South County Region. The map below shows the allocation of zip codes to the North and South County Regions.

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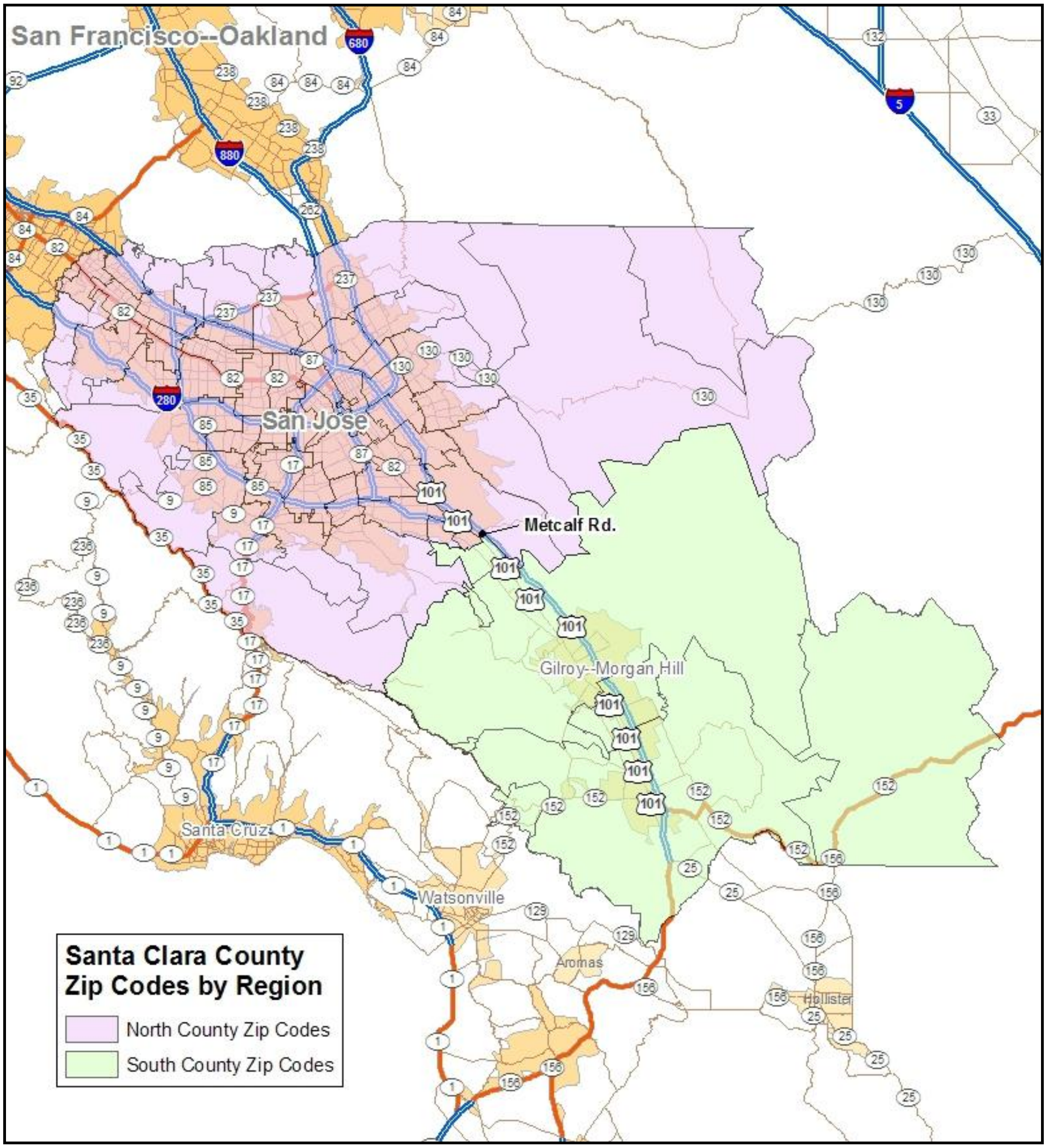
[1] MHB Consultants, Inc., “The Economic Impact of Water Delivery Reductions on the San Francisco Water Department’s Commercial and Manufacturing Customers,” 1994.



Payroll losses and job losses are functions of total payroll and employment, change in water consumption, and output elasticity. Sales revenue losses are determined by total sales, change in water consumption, and output elasticity. In both the employment and sales revenue calculations, consumption is assumed to decrease by ten, twenty and thirty percent in all sectors in both the North and South County Regions.

Data

Employment

The most refined data available on employment are given by zip code. However, employment data are only available by zip code and are not disaggregated by NAICS code. We calculated a weighted average of the number of establishments by zip code and applied it to the employment data. Specifically, we multiplied the share of establishments in a given zip code and NAICS code by the annual payroll and number of employees in the zip code, to approximate the annual payroll and number of employees in a zip code-NAICS code combination. We aggregated the annual payroll and employment data by sector and by county region. The industrial sector is assumed to be NAICS codes 31-33 and the commercial 42-81.

To calculate the output elasticities, we took an average of the industrial and commercial output elasticities, weighted by the annual payroll data. This calculation was done separately for the North and South County Regions.

Sales Revenue

The best available data on sales revenue are given by NAICS code at the county level. We used the County Business Patterns data to determine the share of establishments by NAICS code and zip code, in the North and South Regions. We applied this share to the county level sales data and aggregated the sales data by sector, for the North and South Regions.

To calculate the output elasticities, we took an average of the industrial and commercial output elasticities, weighted by the annual sales revenue data. This calculation was done separately for the North and South Regions.

Results

The economic impacts to sales revenues are presented in Table 1 below. As the calculations in the column headings show, the losses are calculated by multiplying the base level of sales revenue by the percent water shortage and the elasticity. This calculation is performed for each sector (industrial or commercial) and for each region (North or South).

Table 2 presents the payroll and job losses. In similar fashion to the sales losses, the payroll impacts are calculated by multiplying the base level of annual payroll by the elasticity and the percentage of rationing. The equivalent job losses are estimated by dividing the lost payroll by the average payroll per employee in each sector and region.

Note the two elasticities for each sector, which depend on the level of water reduction. Output is relatively elastic for a 0-15% shortage and relatively inelastic in the event of a 15-30% shortage. Thus, in estimating the economic impacts of a 20% or 30% shortage, we apply the more elastic elasticity to the first 15% of water restrictions, and then we apply the inelastic elasticity to the remainder of the water reduction. These calculations are denoted in the column headings in the tables below.

Payroll, jobs, and sales revenue losses are higher in the commercial sector than the industrial sector in all but one instance. For example, in the industrial sector, payroll losses are $64.5 million under a 10% shortage, compared with commercial payroll losses which are almost $198 million under the 10% shortage. And while payroll losses to the industrial sector are over $447 million under a 30% shortage, commercial sector payroll losses are approximately $3.7 billion, accounting for 89% of the payroll losses under the 30% reduction scenario. Likewise, 58% of the sales revenue losses occur in the commercial sector under the 20% rationing scenario and 62% of the sales losses occur in the commercial sector under the 30% shortage. In the case of sales revenues under the 10% reduction scenario, however, impacts in the industrial sector account for most (59%) of the impacts.

Losses in the North County Region are much greater than losses in the South County Region. Under a 10% shortage, for example, 95% of the payroll losses, 90% of lost jobs, and 88% of sales revenue losses would occur in the North. While payroll losses are estimated at over $60 million and sales revenue losses are approximately $479 million in the southern part of the County, the northern region of the County will see nearly $1.6 billion in payroll losses and almost $4 billion in sales revenue losses under a 20% water shortage.

Table 1: Industrial and Commercial Sector Sales Losses

		10% Water Shortage Scenario			20% Water Shortage Scenario			30% Water Shortage Scenario		
Sector	**Total Sales 2002 (millions $)**	**% Change in Industrial Consumption**	**Elasticity (0-15%)**	**Sales Loss (millions)**	**% Change in Industrial Consumption**	**Elasticity (15-30%)**	**Sales Loss (millions)**	**% Change in Industrial Consumption**	**Elasticity (15-30%)**	**Sales Loss (millions)**
	[I]	**[II]**	**[III]**	**[IV] = [I]x[II]x[III]**	**[V]**	**[VI]**	**[VII] = 0.15x[I]x[III] + ([V]-0.15)x[I]x[VI]**	**[VIII]**	**[IX]**	**[X] = 0.15x[I]x[III] + ([VIII]-0.15)x[I]x[IX]**
NORTH										
Industrial	$41,660	10.0%	0.110	$457	20.0%	0.468	$1,660	30.0%	0.468	$3,608
Commercial	$99,156	10.0%	0.033	$324	20.0%	0.365	$2,297	30.0%	0.365	$5,917
SOUTH										
Industrial	$5,450	10.0%	0.122	$66	20.0%	0.462	$225	30.0%	0.462	$477
Commercial	$10,884	10.0%	0.033	$36	20.0%	0.367	$254	30.0%	0.367	$654

Notes:

1) The Industrial sector is composed of NAICS codes 31-33.
2) The Commercial sector is composed of NAICS codes 41-82.
3) Total Sales includes all sales, shipments, receipts, and revenues in the industrial and commercial NAICS codes for Santa Clara County.

4) To determine the amount of sales revenue by sector in North and South Santa Clara County, total sales revenue were adjusted by the weighted average of the number of establishments by NAICS code, by region of the county (North or South). The number of establishments are given by NAICS, by zip code in the 2007 County Business Patterns data.
5) Weighted-average industrial and commercial output elasticities were calculated using MHB output elasticities and 2002 Economic Census data. The elasticities reported in the MHB study are for 0% to 15% and 15% to 30% reductions in water supply.
6) Some NAICS codes have data suppressed in the Economic Census to protect anonymity; this may influence the calculated average elasticity.

Sources:

[I]: 2002 Economic Census data and 2007 County Business Patterns Data
[II], [V], and [VIII]: SCVWD reduction scenarios
[III], [VI], and [IX]: MHB Study and 2002 Economic Census data

Table 2: Industrial and Commercial Sector Payroll and Job Losses

			10% Water Shortage Scenario				20% Water Shortage Scenario				30% Water Shortage Scenario			
Sector	**Total Payroll 2007 (thousands)**	**Avg Payroll per Employee (thousands)**	**% Change in Industrial Consumption**	**Elasticity (0-15%)**	**Payroll Loss (thousands)**	**Equivalent Job Losses**	**% Change in Industrial Consumption**	**Elasticity (15-30%)**	**Payroll Loss (thousands)**	**Equivalent Job Losses**	**% Change in Industrial Consumption**	**Elasticity (15-30%)**	**Payroll Loss (thousands)**	**Equivalent Job Losses**
	[I]	**[II]**	**[III]**	**[IV]**	**[V] = [I]x[III]x[IV]**	**[VI] = [V] / [II]**	**[VII]**	**[VIII]**	**[IX] = 0.15x[I]x[IV] + ([VII]-0.15)x[I]x[VIII**	**[X] = [IX] / [II]**	**[XI]**	**[XII]**	**[XIII] 0.15x[I]x[IV] + ([XI]-0.15)x[I]x[XII]**	**[XIV] = [XIII] / [II]**
NORTH														
Industrial	$5,757,763	$89.45	10.0%	0.108	$61,952	693	20.0%	0.393	$205,936	2,302	30.0%	0.393	$431,953	4,829
Commercial	$59,825,233	$79.71	10.0%	0.031	$187,975	2,358	20.0%	0.363	$1,366,299	17,141	30.0%	0.363	$3,534,974	44,349
SOUTH														
Industrial	$162,534	$39.03	10.0%	0.158	$2,562	66	20.0%	0.460	$7,579	194	30.0%	0.460	$15,050	386
Commercial	$1,922,127	$38.18	10.0%	0.051	$9,749	255	20.0%	0.398	$52,846	1,384	30.0%	0.398	$129,291	3,387

Notes:

1) The Industrial sector is assumed to be NAICS codes 31-33.

2) The Commercial sector is assumed to be NAICS codes 42-81.

3) Total Payroll includes all payroll in the industrial and commercial NAICS codes for Santa Clara County.

4) To determine the amount of payroll by sector in North and South Santa Clara County, payroll was adjusted by the weighted average of the number of establishments by NAICS code, by region of the county (North or South). The number of establishments are given by NAICS, by zip code in the 2007 County Business Patterns data.

5) Weighted-average industrial and commercial output elasticities were calculated using MHB output elasticities and 2002 Economic Census data. The elasticities reported in the MHB study are for 0% to 15% and 15% to 30% reductions in water supply.

Sources:

[I] and [II]: 2007 County Business Patterns data
[III], [VII], and [XI]: SCVWD reduction scenarios
[IV], [VIII], and [XII]: MHB Study and 2007 County Business Patterns dat

APPENDIX M

Financial Analysis

Introduction

This section summarizes the estimated groundwater production charge increases for implementing the Water Master Plan recommended strategy and includes brief discussions on assumptions associated with demand, expenditures and debt financing projections. The financial analysis is based on a 25-year financial model that compares a baseline projection to one that includes the projects from the Water Master Plan recommended strategy. The difference between the scenarios is the long-term impact of implementing the strategy to water charges in the North County and the South County.

The groundwater charge provides the basis for setting treated water, surface water and recycled water charges. Therefore, this summary focuses on the impact of the Water Master Plan recommended strategy on the groundwater charge. The North County groundwater rates necessary to fund the recommended strategy range from $5 per acre foot (AF) in FY2018-19 to $304/AF by the last year of the financial forecast. This is an incremental average increase of 0.6% annually from FY 2016-17, when projects begin, through FY 2036-37, when the financial forecast ends (21 years). The South County rates do not change.

The implementation of the Water Master Plan recommended strategy makes possible the sale of water during wet years. These revenues help offset the cost impact of the recommended strategy, and are included in the rate projections. Additionally, the projections include minor adjustments to the State Water Project tax in conjunction with purchasing incremental State water as part of the Dry Year Option Agreements project.

Guiding legislation

Per Section 26.3 of the District Act, proceeds from groundwater production charges can be used for the following purposes:

1. Pay for construction, operation and maintenance of imported water facilities
2. Pay for imported water purchases
3. Pay for constructing, maintaining and operating facilities which will conserve or distribute water including facilities for groundwater recharge, surface distribution, and purification and treatment
4. Pay for debt incurred for purposes 1, 2 and 3.

Resolution 99-21 guides staff in the development of the overall pricing structure based on principles established in 1971. Pricing is structured to manage surface water, groundwater supplies and recycled water conjunctively to prevent the over use or under use of the groundwater basin.

The projects recommended in the Master Plan fall within the above state purposes and pricing guidelines.

General Forecast Basis

The 10 year financial forecast prepared annually for the *Protection and Augmentation of Water Supplies (PAWS)* serves as the base for the Water Master Plan 25 year rate projection. The assumptions used in the 10 year financial forecast are discussed at length in the FY2012-13 PAWS report[1]. For Master Plan projections, the 10 year forecast has been updated for fiscal years 2011-12 closing and 2012-13 budget changes, plus minor adjustments to the capital program. The 10 year financial forecast was extended out another 15 years based on expense projections and the corresponding rate adjustments necessary to maintain reserves at policy levels. Information on the assumptions used to build the forecasts can be found in Appendix X. This base forecast is compared to one that includes the recommended strategy projects. The difference in water charges is the estimated impact of the recommended strategy.

Water Master Plan Projects

The Water Master Plan is comprised of one revenue project and five operating and/or capital projects which are listed in Table 1. Revenue and expenses for these projects begin in FY 2016-17, with operating expenses continuing through FY 2036-37, the last year of the financial forecast.

Table 1: Master Plan Projects in Inflated Dollars

	Millions
Expense Projects	
Greywater Use	$ 4.6
North County Recharge	25.9
Indirect Potable Reuse Recharge - Los Gatos Ponds	688.6
Lexington Pipeline	19.0
Imported Water Dry Year Option Agreements	55.8
Total Expenses	**$ 793.9**
Less Revenue Project	
Imported Water Reoperations	$ (78.0)
Net Master Plan Cost	**$ 715.9**

Rate Impacts of Implementing the Water Master Plan

The Water Utility Enterprise is comprised of two major zones of benefit: North County (Zone W-2) and South County (Zone W-5).

The North County is generally defined as the portion of the Santa Clara County north of Metcalf Road. North County includes three water treatment plants in addition to groundwater recharge facilities. It accounts for approximately 80% of District water consumption but because of higher charges due to higher costs, about 95% of Water Utility revenue. North County revenue is primarily derived from treated water and groundwater charges which are adjusted in this report to gauge the impact of the Master Plan.

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[1] The PAWS report can be viewed at Hhttp://www.valleywater.org/EkContent.aspx?id=7551&terms=protection+and+augmentation+of+water+supplies

The South County is generally defined as the portion of the county south of Metcalf Road. South County does not include surface water treatment plant facilities but groundwater is actively managed through water recharge facilities. Within the Water Utility Enterprise, South County revenues and expenses are tracked separately from those of North County so that the groundwater production charges for services that benefit the South County Zone can be calculated. South County revenue is primarily from groundwater charges.

As shown in Table 2 and Chart 1, North County rate increases necessary to fund the Water Master Plan recommended strategy range from $5/AF beginning in FY 2018-19 to $304/AF by FY 2036-37. This is a 0.6% incremental average annual increase to groundwater charges over the 21 years that project revenue and expenses occur.

The South County rate analysis is illustrated in Table 3 and Chart 2. As can be seen, program costs can be absorbed without any change to rates over the life of the financial forecast because the portion of Water Master Plan activities that benefit the South County are offset by Imported Water Reoperations sales revenue during wet years.

Table 2: North County Rates - Comparison of Base to Master Plan

	(In Millions)																								
	FY 13	**FY 14**	**FY 15**	**FY 16**	**FY 17**	**FY 18**	**FY 19**	**FY 20**	**FY 21**	**FY 22**	**FY 23**	**FY 24**	**FY 25**	**FY 26**	**FY 27**	**FY 28**	**FY 29**	**FY 30**	**FY 31**	**FY 32**	**FY 33**	**FY 34**	**FY 35**	**FY 36**	**FY 37**
($/AF)																									
NC GWP charge/AF - Base	$ 622	$ 680	$ 745	$ 815	$ 895	$ 980	$1,070	$1,160	$1,220	$1,280	$1,312	$1,351	$1,392	$1,441	$1,491	$1,551	$1,613	$1,677	$1,744	$1,814	$1,887	$1,962	$2,041	$2,122	$2,207
NC GWP charge/AF - Master Plan	$ 622	$ 680	$ 745	$ 815	$ 895	$ 980	$1,075	$1,170	$1,250	$1,330	$1,410	$1,494	$1,584	$1,663	$1,746	$1,816	$1,889	$1,964	$2,043	$2,125	$2,210	$2,298	$2,367	$2,450	$2,511
Master Plan Increase/(Decrease)	$ -	$ -	$ -	$ -	$ -	$ -	$ 5	$ 10	$ 30	$ 50	$ 98	$ 143	$ 192	$ 223	$ 255	$ 266	$ 276	$ 287	$ 299	$ 311	$ 323	$ 336	$ 327	$ 328	$ 304
Operating Costs	$136	$146	$150	$155	$159	$164	$ 175	$ 193	$ 202	$ 210	$ 222	$ 235	$ 248	$ 263	$ 279	$ 295	$ 313	$ 332	$ 353	$ 375	$ 399	$ 424	$ 452	$ 481	$ 513
Capital Costs	$ 65	$ 95	$122	$187	$199	$110	$ 93	$ 27	$ 35	$ 119	$ 100	$ 105	$ 110	$ 116	$ 122	$ 128	$ 134	$ 141	$ 148	$ 155	$ 163	$ 171	$ 180	$ 189	$ 198
WSIMP Costs	$ -	$ -	$ -	$ -	$ 15	$ 16	$ 21	$ 17	$ 32	$ 34	$ 28	$ 60	$ 62	$ 65	$ 87	$ 72	$ 30	$ 25	$ 27	$ 27	$ 29	$ 46	$ 32	$ 33	$ 35
Total	**$201**	**$241**	**$271**	**$342**	**$373**	**$290**	**$ 289**	**$ 237**	**$ 269**	**$ 363**	**$ 350**	**$ 400**	**$ 421**	**$ 444**	**$ 487**	**$ 495**	**$ 478**	**$ 499**	**$ 527**	**$ 558**	**$ 591**	**$ 642**	**$ 663**	**$ 703**	**$ 746**

Chart 1: North County Rates - Comparison of Base to Master Plan

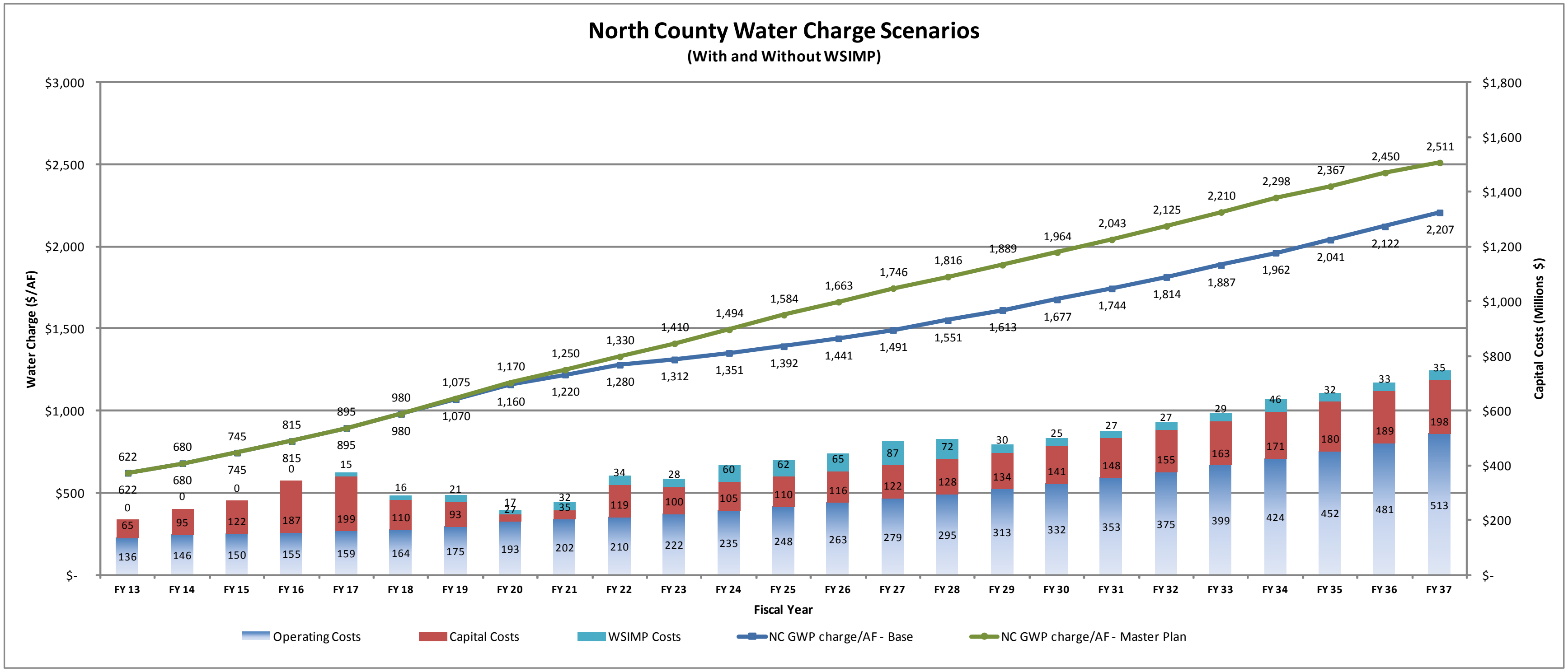
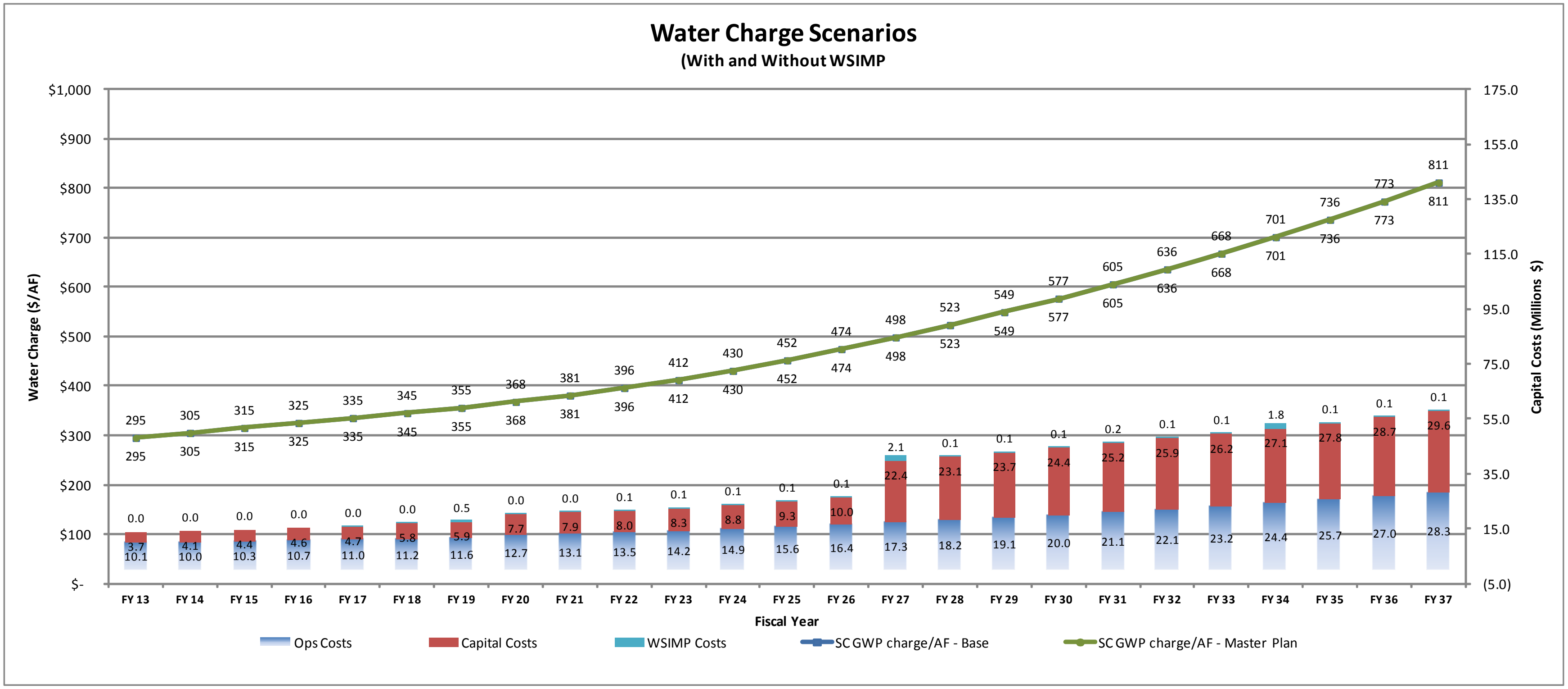


Table 3: South County Rates - Comparison of Base to Master Plan

	FY 13	FY 14	FY 15	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	FY 22	FY 23	FY 24	FY 25	FY 26	FY 27	FY 28	FY 29	FY 30	FY 31	FY 32	FY 33	FY 34	FY 35	FY 36	FY 37
	(In Millions)																								
($/AF)																									
SC GWP charge/AF - Base	$ 295	$ 305	$ 315	$ 325	$ 335	$ 345	$ 355	$ 368	$ 381	$ 396	$ 412	$ 430	$ 452	$ 474	$ 498	$ 523	$ 549	$ 577	$ 605	$ 636	$ 668	$ 701	$ 736	$ 773	$ 811
SC GWP charge/AF - Master Plan	$ 295	$ 305	$ 315	$ 325	$ 335	$ 345	$ 355	$ 368	$ 381	$ 396	$ 412	$ 430	$ 452	$ 474	$ 498	$ 523	$ 549	$ 577	$ 605	$ 636	$ 668	$ 701	$ 736	$ 773	$ 811
Master Plan Increase/(Decrease)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Operating Costs	10.1	10.0	10.3	10.7	11.0	11.2	11.6	12.7	13.1	13.5	14.2	14.9	15.6	16.4	17.3	18.2	19.1	20.0	21.1	22.1	23.2	24.4	25.7	27.0	28.3
Capital Costs	3.7	4.1	4.4	4.6	4.7	5.8	5.9	7.7	7.9	8.0	8.3	8.8	9.3	10.0	22.4	23.1	23.7	24.4	25.2	25.9	26.2	27.1	27.8	28.7	29.6
WSIMP Costs	-	-	-	-	0.0	0.0	0.5	0.0	0.0	0.1	0.1	0.1	0.1	0.1	2.1	0.1	0.1	0.1	0.2	0.1	0.1	1.8	0.1	0.1	0.1
Total	**13.8**	**14.1**	**14.7**	**15.3**	**15.8**	**17.1**	**18.1**	**20.5**	**21.0**	**21.6**	**22.5**	**23.8**	**25.1**	**26.5**	**41.8**	**41.3**	**42.9**	**44.6**	**46.4**	**48.1**	**49.6**	**53.3**	**53.6**	**55.8**	**58.1**

Chart 2: South County Rates - Comparison of Base to Master Plan



Forecast Assumptions

The following financial forecast assumptions have been used to develop the 25 Year Financial Base and Water Plan Forecasts.

Demand for Water

The financial forecast is a financially conservative forecast. Whereas the Water Master Plan seeks to plan for facilities to meet a high demand curve (conservative from a water supply planning perspective), the financial forecast seeks to set rates based on a low demand curve (conservative from a financial planning perspective). This approach aids financial planning by helping to ensure that rate projections will adequately fund infrastructure and operational needs.

Base and Master Plan Financial Forecasts

The financial forecast assumes relatively flat demand the first 10 years of the forecast. Starting in fiscal year 2012-13, the demand growth percentages derived for the 2010 Urban Water Management Plan are applied to base consumption estimates.

The demand growth assumed in the financial models is summarized in *Table 4: Water Demand Growth*.

Table 4: Water Demand Growth

	2013-22	2023-25	2026-30	2031-35
Treated Water	0.00%	2.51%	2.92%	3.01%
Groundwater Pumping				
North County	0.00%	1.62%	1.68%	2.53%
South County	0.00%	1.65%	2.01%	1.36%

Revenue Assumptions

Base and Master Plan Financial Forecasts

The Water Utility has a number of other revenue categories in addition to its major sources of revenue - the imposition of charges on groundwater production and from contracts for the sale of treated surface water produced by its three treatment plants. Growth rates for surface water charges and recycled water charges are in alignment with groundwater charges. The amounts for grants, capital reimbursements and other sources do not change materially. The revenue and growth assumptions used in the base and Master Plan rate projections for ad valorem property tax, State Water Project property taxes, and interest earnings are identified in *Table 5: Revenue Growth Assumptions*.

Table 5: Revenue Growth Assumptions

Revenue Category	**Assumptions**
FY2013-FY22	
Ad Valorem Property Tax	
North County	Inflated 0.80% annually
South County	Inflated 0.80% annually
State Water Project Property (SWP) Tax	8.1%-12.5% tied to cost growth in State Water Project purchases
Interest Earnings Rate	Interest rates: FY2013 at .70% ramping up to 3% in FY2019-22
FY2023-37	
Ad Valorem Property Tax	
North County	Inflated 2.5% annually
South County	Inflated 5.0% annually
State Water Project Property (SWP) Tax	Inflated 9.6% annually tied to cost growth in State Water Project purchases
Interest Earnings Rate	3% each year

Water Master Plan Scenario

In the Water Master Plan comparative model, there are two additional revenue categories – State Water Project tax and Imported Water Reoperations.

The District incurs an annual indebtedness to the State of California pursuant to its Water Supply Contract dated November 20, 1961. Such indebtedness is proportional to the District's allocation of water from the State Water Project (SWP) that pays for construction, maintenance and operation of State Water Project infrastructure and facilities. Since the State Water Project was voter approved, the District is authorized to levy property taxes to recover the cost of State Water Project contractual obligations.

The Water Master Plan includes a Dry Year Water Option Agreements project which includes water that would be conveyed through the State Water Project with related conveyance charges billed to the District through its State Water Project contract. Staff estimates that approximately $50 per acre foot in current dollars would be eligible for tax cost recovery. Purchases are triggered in FY2018-19, FY2026-27, and FY2033-34 with water purchase inflation calculated at 4% per year. Dry Year Water Option Agreements project expenses and revenue are presented in *Table 6: Dry Year Option Agreements Net Cost*.

Table 6: Dry Year Option Agreements Net Cost

	Millions
	Total
Dry Year Option Agreements Project Expenses	$55.8
Off-setting State Water Project Tax	(4.3)
Net Dry Year Option Agreements Project Expenses	**$51.5**
Percent project recovered by tax	-8%

Imported water reoperations is the annual sale of water when the District's banked water at Semitropic Irrigation District storage facility is near capacity and District water supply needs are otherwise met. The sales volume limit is capped in this report at 50,000 acre-feet per year. For rate projection purposes, the sale of water is projected to occur every three years between FY17 and FY37 with a nominal annual income from option agreement contracts. The inflation rate for the contracts is 5% and the inflation rate on water sales is 4%. Total inflated value over the life of the financial forecast is $78 million.

Expense Assumptions

Base and Master Plan Forecasts

The Water Utility constructs, operates and maintains reservoirs, pipelines, recharge facilities and water treatment plants as well as conducts various forms of monitoring, analyses, and administrative functions. Major expense assumptions included in the base and Master Plan 25 year rate projections are indicated in *Table 7: Expense Growth Assumptions*.

Table 7: Expense Growth Assumptions

Expense Category	**Assumptions**
FY13-FY22	
Salaries	Based on negotiated contracts
Benefits	Ramping from 79.8% of salaries in FY2013 to 120.5% in FY2022
Services and supplies	3% annual inflation
Construction costs	Annual inflation of 3% for FY2013-18 increasing to 5% for FY2019-22
State Water Purchases	11.14% average annual inflation
San Felipe Division Water Purchases	0.36% average annual inflation
FY23-37	
Operating projects and programs	Cost of FY2021-22 projects inflated annually by 5.0%
State Water Purchases	9.6% average annual inflation
San Felipe Division Water Purchases	0.5% average annual inflation
Bay-Delta Conservation Plan	$10M per year inflated by 5% beginning in FY2020-37
Base Capital Projects	The FY2013-22 capital program annual average inflated annually by 5.0%
Seismic Safety of two South County Reservoirs	$71M assumed in first four years of general FY23-37 capital program expense assumption. Annual capitalized cost impact to South County rates begins in FY2027-37

Water Master Plan Scenario

The Water Master Plan is comprised of five projects. They are:

- Greywater Use operating program
- North County Recharge capital project with ongoing operating expenses
- Indirect Potable Reuse Recharge – Los Gatos Ponds capital project with ongoing operating expenses
- Lexington Pipeline capital project with ongoing operating expenses
- Imported Water Dry Year Option Agreements operating program

All projects include ongoing operating program costs for which annual inflation is calculated at 5% except for the purchase of water which is calculated at 4%. Capital project inflation is factored at 5% annually.

Debt Assumptions

Base and Master Plan Forecasts

The Water Utility base financial forecast includes approximately 57% of debt financing. This percentage decreases to 54% in the Water Master Plan scenario through a slight increase in the use of reserves. The assumptions for different financing instrument borrowing rates are listed below in *Table 8: Debt Financing Assumptions*.

Table 8: Debt Financing Borrowing Cost Assumptions

Borrowing Type	Rate
Senior Lien Tax Exempt	5.50%
Senior Lien Taxable	7.00%
Subordinate Lien Taxable	5.20%
Commercial Paper Tax Exempt	5.00%
Commercial Paper Taxable	5.40%

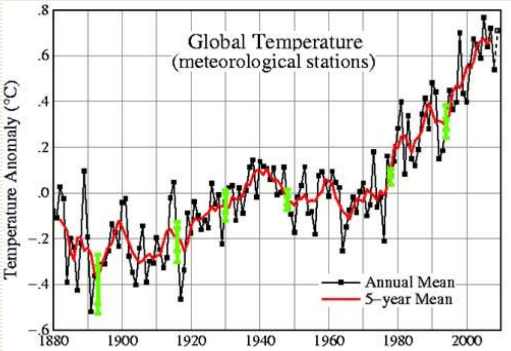
Reserves Assumptions

Base and Master Plan Financial Forecasts

The Water Utility Enterprise reserves are set based on legal requirements and policy. The District Reserve Policy incorporates both. It can be found within the Financial Summaries section of the FY 2011-12 Budget document at http://www.valleywater.org/About/Finance.aspx. Both the Base and the Master Plan Financial Forecasts maintain reserves within policy guidelines with discretionary reserves maintained at the same approximate ratios to avoid unduly affecting differences in rates.

APPENDIX N

Climate Change Data Needs

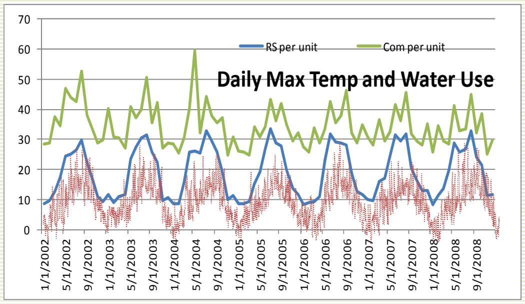


WSIMP TASK 2B

TECHNICAL MEMORANDUM: Assess Climate Change Data and Process Needs: December 2011

Cris Tulloch

> *"Climate variability involves fluctuations in climate conditions on time scales of months, years, and decades. Improved ability to forecast and use climate variability information would greatly enhance the ability of water managers and water users to plan their short-term operations and water delivery schedules. The influence of climate change on short-term climate variability is an additional factor that is now central to this area of concern."*
>
> Brekke L, USBR, 2011



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1 Purpose

The purpose of this memorandum is to support the need for, and to recommend the collection of, detailed weather, water use and reservoir inflow data for continued analysis of climate change impacts related to water demand and local surface water supply in Santa Clara Valley. This data will also support the development of baseline information, which if periodically updated, will aid in future analysis of localized climatic trends related to global warming and its effects. Furthermore, some of these recommendations, if implemented, will be useful for other water supply or climate change analyses into the future.

Analysis of a detailed record of climate data helps to identify how a region may be experiencing potential climate changes when compared to departure from the historic record. For instance, climate change may not dramatically change the annual range of rainfall quantities, but rather, changes in precipitation patterns may be possible. To observe if this occurring or to better understand the climatic patterns, a database of daily precipitation and temperature data is necessary. This also helps to evaluate future changes in rainfall patterns, or heat waves, and to examine if changes are out of norm compared to historic conditions. Furthermore, while changes in average temperature and precipitation will very likely occur gradually, the frequency and intensity of extreme events such as heat waves, droughts, and floods can change substantially with even small average changes. This implies that changes in extreme events are among the immediate climate challenges. Understanding how these events are changing is of critical importance for adaptation planning. In addition, identifying geographic differences or anomalies using data from multiple locations is particularly important due to the highly variable microclimates in this valley.

External reports and studies do not address the anticipated local weather impacts of climate change or effects specific to water supply in Santa Clara County. This type of analysis is highly specific to local regions. A review of best management (planning) practices indicates that many water agencies use reliable climate and hydrology data to build scenarios of anticipated or likely future trends or ranges of anticipated conditions. Many agencies have analyzed historical data to identify climatic or hydrologic changes or trends that may represent the effects of global warming that are already occurring. The district would also do well to conduct its own analysis to begin to evaluate potential changes and its effects. In addition, planners and modelers should continue to review climate change science and findings as more local data is collected and as the science continues to evolve. Collection and analysis of climate data should not be conducted as a onetime effort for planning, but as part of continual water supply operations and long-term reliability analyses.

2 Climate Change Conditions and Impacts

This section provides a review of potential climate change effects on water management in the southwest US, specifically changes in temperature and precipitation. Further discussion of impacts is included in the WSIMP Task 2 Tech Memo on climate change.

2.1 Climate Change Impacts Overview - Southwest

- Likely reduced quantities of surface water available from local runoff
- Likely reduced quantities of water available to recharge groundwater aquifers
- Changes in vegetation of watershed and aquifer recharge areas
    - Altered recharge of groundwater aquifers
    - Changes in quantity and quality (e.g., TOC, alkalinity) of runoff into surface waters

- Increased water temperature
    - — Increased evaporation and eutrophication in surface sources
    - — Increased algae development and potential effect on groundwater recharge facilities
    - — Water treatment and distribution challenges (disinfection, byproducts, regrowth)
    - — Negative effects on cold water fisheries
- Increased water demand
    - — Increased irrigation demand
    - — Increased urban demand with more heat waves and dry spells
    - — Increased drawdown of local groundwater resources to meet the increased demands
- Increased complexity in environmental water demand
    - — Increased difficulty of maintaining minimum in-stream flows in surface waters resulting in ecosystem and water rights vulnerabilities
- More intense rainfall events
    - — Increased turbidity and sedimentation
        - ▪ Reduced reservoir storage
        - ▪ Increasing water filtration or filtration/avoidance treatment challenges
    - — Potential conflicts with flood protection objectives
    - — Increased risk of direct flood damage to water utility facilities

2.2 Temperature Projections

Many studies (Hayhoe et al. 2004; Gershunov and Douville 2008; Miller et al. 2008) predict mean temperature increases from 1^{o}C to 3^{o}C (1.8^{o}F to 5.4^{o}F) in the early part of the twenty-first century, with greater warming in summer than in winter. Drier conditions and heat waves are expected in some regions. With continued climate warming, the occurrences of these events will increase in frequency and magnitude. California's complex terrain will modulate the value locally. For instance, studies have concluded that temperature increases will amplify in the interior of the California.

Rising average global temperatures will lead to more frequent periods of extreme heat and increase the potential for temperatures above the range of historical experience locally. For example, statewide, the number of days per year above the "climatological" (1961 to 1990) 90th percentile temperature (meaning only 10 percent of daily temperatures exceed this level) is projected to increase from a current average of around 6 weeks per year to an average of 15 to 19 weeks per year under the same or higher greenhouse gas emissions scenario, and to an average of 10 to 12 weeks per year under a lower emissions scenario (Dreschler et al., 2006). Additionally, the length of individual events is expected to increase from a few days to as much as a few weeks. These changes away from historical extremes are important because water supply planning traditionally uses history as a basis for future planning. This paradigm needs to change in light of climate change. Also, because of the potential for local impacts and locally changing climatic conditions, additional study of both local water use and changes in climate is warranted. Having detailed historical records of daily temperature will assist in identifying changes in trends and extremes, and can be used to evaluate changing water use patterns that correlate with temperature.

2.3 Precipitation Projections

Climate model simulations indicate that the high degree of variability of annual precipitation will prevail during this century. Again, local variability is expected and the valley's unique climate and geography affect the ability for more precise local projections. Interannual-decadal variability is expected, as well is the potential for an overall drying tendency. Some models show a decline in the frequency of precipitation events, but not a clear-cut change in precipitation intensity. Climate projections for the southwest indicate a reduced quantity of surface water available from local runoff is likely. While climate models suggest a decided drying tendency and a decline in the frequency of precipitation events, they do not necessarily indicate a clear-cut change in precipitation intensity. The Intergovernmental Panel on Climate Change (IPCC) noted an increased frequency of heavy and extreme precipitation events have been observed in the west, even in areas where overall precipitation has declined. Another report cited a similar trend "…in much of the United States of the highest daily- year–month precipitation amount, but with no systematic national trend of the median precipitation amount." (Karl, T, NOAA, 1998) Some models suggest this trend will continue and will be more significant in areas where overall precipitation increases.

Precipitation patterns and intensity in the local watersheds have more impact on reservoir inflows than do the frequency of precipitation or overall season averages. For instance, rain events with back to back to storms, particularly if of high intensity, will result in more runoff due to saturated ground conditions than would more spread out and intermittent events. Changes in local precipitation patterns are likely to affect local water supplies. Therefore, it has become more important to gain a better understanding of the relationship between local rainfall and reservoir inflow, in addition to monitoring changes in precipitation patterns. A detailed record of historical daily rainfall is necessary to evaluate changes in precipitation patterns and to continue to monitor for changes and extremes into the future. The types of short term precipitation trends of interest cannot be identified using monthly or even weekly precipitation data records. Due to the microclimates of this area and the geographically separate locations of district reservoirs, multiple climate data locations must be used for a complete evaluation of relationship between rainfall and reservoir inflows.

3 Recommendations

Much of the support for these recommendations is also found in the WSIMP Task 2 Tech Memo. This section further provides further support for conducting specific climate change and water resources analyses. New studies and reports published since the last analysis performed for the Task 2 memo continue to indicate the need for climate data collection and analysis. For instance, DWR's 2011 "Draft Handbook: Regional Water Management Planning with Climate Change Adaptation and Mitigation" contains an approach to measuring climate impacts that requires local climate analysis.

3.1 Conduct Water Supply and Water Demand Analyses

Developing future water demand projections is one critical component of long-term water supply planning. The district has not yet conducted a rigorous evaluation of the potential implications of future climate change on water demand. The first step to evaluate the potential effects climate change on water demand is to look at the current relationship between water demand and climate across different customer sectors and locations. The importance of conducting this evaluation is supported by a recent study by George Washington University researchers who concluded that utilities need a better understanding of current water demand before conducting any future demand forecasting (AWWA Streamlines, July 26, 2011- Volume 3, Number 18). Historic and detailed weather and water use data is needed refine the district's understanding in this area. This type of analysis includes identifying correlations between water use and short term/daily climate conditions, in addition to the more significant events such as heat waves and long dry spells.

Other agencies or researchers have conducted some similar evaluations or water demand analyses. It may be helpful to review the most recent state of the art practices prior to conducting the water demand analysis. For instance, American Water Works Association is conducting a study on how to improve current water demand forecasting (AWWA Streamlines, November 2, 2010. Volume 2, Number 26).

Data Review

A qualitative comparison of weather (particularly extremes) and water use should be conducted to identify any correlations or causal relationships (or to show there is not significant correlation). One reason for identifying qualitative correlations, prior to statistical quantitative analysis, is the short period of record available for the detailed water use dataset. If a qualitative correlation appears to exist, it may be supported by more rigorous quantitative statistical analysis, if possible or necessary. However, the results of the qualitative assessment may be sufficient for adjusting the water demand modeling environment or rules.

This analysis may also be able to discern interannual variability in weather and water demand correlations and seasonal variability. However, the interannual variability may not be discernable due to the short study period recommended. Conversely, the seasonal variability and effect of climate should be discernable. The ability to determine if only certain seasonal differences are expected to cause significant changes in demand patterns is important. For example, if the analysis predicts only short term demand increases above the norm during one or two months in the summer, that change in water use may not have any effect on overall long-term water supply reliability. In addition, the analysis may be able to identify correlations between prolonged dry winter periods, or conversely abnormally wet years, with a significant seasonal aberration in water use.

Example simple qualitative correlation exercises

Examine water use data for seasonal outliers or extremes. For instance, for a specific water use sector and for a particular retailer over the period of record, determine water use exceedances from norm or mean for a particular month or season, from one year to another. Fluctuations above norms for a given month should not normally be the effect of an increase in numbers of users. However, if that is of concern, billing accounts can also be used in the analysis to determine the contribution of growth induced increases. One can also look for changes between month to month rather than year to year for the same month. For instance, if the ten year average water use increase from May to June is 35% for SFR, but in year 2009, the increase was found to 50%, this may be an outlier with causation to an extreme climate event period (i.e. heatwave), and is not likely to be dependent on increases in users. Then the weather records can be examined for any correlation or causation between the two. The water demand analysis should use climate data that includes multiple geographically distinct locations most applicable to the geographic location of the water use area being studied.

It is also recommended to conduct the same correlation analysis in reverse; that is – is there a corresponding change in water demand with a significant change in climate conditions or extremes? For example, examine the weather data for outliers or extremes, and then review the water use data for correlation.

Quantitative statistical trend analysis may be used to identify outliers in temperature, precipitation or water trends. This type of analysis will be useful in determining the variables and data to use in the correlation analysis. However, It may be difficult to quantify statistically the relationships between changes in climate and water demand. One significant limitation is that there may be too few sets of data extremes (outliers) for a quantifiable statistical correlation analysis. Another limitation is the difference in the temporal climate and water use data sets; specifically, climate is measured daily, whereas water use data is only measured monthly. This limitation inherently leads to a qualitative analysis. However, where a correlation is found, it may be possible to quantifiably measure the statistical significance of the relationship (p-value- index of the reliability of a result). A limitation if considering a t-Test is the variation of the data within one group. The size of a relationship between two variables, such as increase in temperature and increase in water use, depends largely on the differentiation of values within the group. For instance, if the change in the water use variable is largely independent of increase in temperature, the relationship may not be not statistically quantifiable, but the relationship may still be significant enough for qualitative observation. Depending on how differentiated the values are in each group, the difference in mean values in a group may indicate either a stronger or weaker relationship between the data sets. Regardless if the correlations are quantifiable, the second part of the demand forecast will use quantitative forecasting techniques already imbedded in the forecast model.

Example Methodology Albuquerque, New Mexico

The covariability of interannual summertime climate and water demand fluctuations was analyzed using ordinary least squares linear regression analyses (Hirsch et al. 1993). Demand values were aggregated into monsoon- season variables for various combinations of summer months and were compared with aggregated meteorological variables for the same months. Many different combinations of variables and summer months were considered (Nims 2002). The summer season was defined over the four peak residential demand months (JJAS) or over three months [June–August (JJA) or JAS]. Seasonal water demand data were analyzed both in terms of total demand and on a per capita basis. Climate variables considered were derived from temperature data (daily average, average daily maximum, or seasonal cooling degree-days), precipitation data [average daily rate, natural logarithm of seasonal total, or number of days with more than 0.1 in. (2.54 mm) of precipitation], and humidity data (dewpoint or relative humidity).

Gutzler, D. Journal of Applied Meteorology, December 2005

Water Demand Analysis

Conducting the actual water demand analysis is the second step in this recommendation. As stated previously, it is necessary to establish certain weather and demand correlations first. The results of this analysis is then used to create or update the district's IWRMAIN water demand tool (or other demand models as appropriate). Specifically, the correlations may be used to refine or create elasticity values in the IWRMAIN model. Once the demand model is set up, the actual water demand and climate values for year 2010 can be used to validate and refine the model and elasticity values as appropriate.

Following model validation, the model can be run for future years demand using a range of potential temperature and precipitation conditions. Future climate scenarios can be obtained by using California expected values available in many existing reference documents. Also, some downscaled GCM data for the region is available from the USEPA Climate Resilience Evaluation and Awareness Tool (CREAT) and from a collaborative effort "Bias Corrected and Downscaled WCRP CMIP3 Climate and Hydrology Projections" (USBR, LLNL, USACE, SCU, USGS) http://gdo-dcp.ucllnl.org/downscaled_cmip3_projections/

3.2 Precipitation and Local Water/Watershed Runoff Correlation

The WSIMP Task 2 Tech Memo contained a recommendation to analyze correlations between local precipitation and reservoir inflows. This would, at least in part, require collection and analysis of the climate data recommended in this memo. The Water Utility Planning Unit is also in the process of making a recommendation for conducting an analysis of reservoir inflows.

This study is recommended because the District is not currently able to reliably model local water capture estimates using climate scenarios of projected changes in precipitation patterns. It is recommended that an analysis be conducted to determine if correlations between rainfall patterns and reservoir inflows can be determined. Precipitation data and reservoir inflow estimates should be examined for (qualitative or quantitative) relationships. Specifically, are there correlations between temporal rainfall distribution patterns and intensities and reservoir inflow or watershed runoff capture? {Note that limitations may exist in the data sets for this analysis that exist for the demand study. Specifically that precipitation values are hourly to daily, whereas the inflow measurements will be weekly.]

Additional support for the need to collect detailed and geographically distinct rainfall data comes from the conclusion of a recent study. The study did not find evidence for “uniformly increasing trends in rainfall extremes averaged over the entire Indian region”. It did, however, find a steady and significant increase in the spatial variability of rainfall extremes over the region. "Our research suggests that one needs to be aware of the different characterizations of extremes and that these characterizations require both interpretability and statistical rigor," said Ganguly. “The research team noted that statistical observations offer complementary insights compared to the current generation of physics-based computational models. This is especially the case if the goal is to understand climate and rainfall variability at local to regional scales. The study also discusses statistical methodologies employed.”
http://environmentalresearchweb.org/cws/article/yournews/48195

The goal of this analysis is to identify correlations in temporal rainfall patterns and inflow values that may be used to project potential watershed flow or reservoir inflow quantities in light of future climate changes. The purpose of this correlation would be to model the district’s system in light of potential climate change projections. For instance, if the climate change studies predict more short term rainfall events, increases in rainfall intensities, and/or shorter rainfall seasons with the timing of storms closer together, how would that affect the district’s overall local surface water supply reliability (watershed runoff capture)?

This memorandum does not recommend specific processes for conducting this analysis, nor does it make recommendations for specific methods of statistical qualitative correlation analyses. Internal subject matter experts and existing tools and models should be considered prior to making specific recommendations. However, it is recommended that: a) the climate data be collected and compiled, b) the district’s historical reservoir inflow values be calculated to weekly values, and c) precipitation and inflow data be subjected to significant and rigorous correlative analyses. Following the analysis, the correlation results along with future climate change projections can be used to update, test and run water supply models.

It may be useful to point out however, complex correlative statistical methods in addition to basic linear correlations or regression analysis may be needed for this type of analysis. For example, a common basic statistical approach to correlation is the Pearson correlation coefficient (sensitive to a linear relationships), but other correlation coefficients that are more robust and more sensitive to nonlinear relationships may also be appropriate. Other methods may include more rigorous analytical tools such as Average Variability Method (developed by Pilgrim and Cordery 1975) or Monte Carlo analysis.

After obtaining the results of the correlation analyses, it is expected that the district's existing modeling tools and expertise will be utilized. The district already has hydrologic modeling tools such as HEC-RAS and HEC-HMS used in projecting flood flows. In addition, WEAP is a common modeling tool referenced in other documents determining reservoir inflow or local water capture values. The District uses a WEAP model in water supply modeling, but it may not be currently configured for this type of analysis.

4 Data Collection Recommendations:

Collection and compilation of historic weather data is necessary to complete the recommendations of this memorandum and the Task 2 Tech Memo. This section describes the data needs that came from the research performed as part of the previous Tech Memo, and from an updated review of more recent and applicable guidance documents and studies

Precipitation data is required for evaluating rainfall capture and reservoir inflows. Temperature data for water demand analysis and user sensitivity to heat waves or extremes is also needed. Historical long-term daily precipitation and temperature data is also necessary for creating and evaluating a baseline of local weather. This baseline can build a comprehensive local climate database that can be used across the district for many purposes. Other uses of this data are as follows:

- Historical weather data is helpful when evaluating and validating climate forecast model results such as downscaled Global Climate Models (GCMs). "For climate change assessment, planners must have access to historical temperature and precipitation data to define a climate reference for two purposes: climate model bias-correction and climate projection spatial downscaling. The need for climate model bias-correction starts with recognition that the GCMs have been used to simulate historical conditions as well as future conditions. Comparing historical simulations to historical observations provides a sense of how that particular model's projections may be biased, given that the model may simulate historical climate that is too wet, dry, warm, and cool, etc. Each model has its own unique biases, and decisions must be made on whether and how to account for these climate model tendencies in planning (i.e., bias-correction)." Brekke, L, USBR, 2011.
- For the purpose of climate change assessment, this data is useful to see if new trends or weather patterns or extremes are beginning to develop. It is particularly useful in this region to conduct a geographically specific analysis because this region is located in an area where future predictions are the most unclear. Specific analyses recommended in the Task 2 Tech Memo require this detailed data.

4.1 Water Use Demand Analysis – Data Needs

Climate Data Needs

- Temperature: Daily Min, Max, Ave
- Precipitation: Daily
- The recommended weather stations for this analysis based on retailers chosen are:
  — Morgan Hill

— Palo Alto
— San Jose
— (Gilroy- If addition City of Gilroy water use data is available as indicated elsewhere in this memo)

Water Use Data Needs
This recommendation is to collect, organize and combine at least 10 years of monthly residential water use and daily climate data for analysis. *[Note that 10 years is the recommended minimum due to data availability, and is not to be inferred to be a statistically valid data set. In addition, monthly water use is recommended only because that is the minimum frequency available].* Since some retailer data have limitations in availability or usefulness of some of their records, only the following retailers are recommended for this specific study:

- City of Morgan Hill
- CalWater Los Altos
- City of Palo Alto
- City of Santa Clara
- (City of Gilroy if SFR and MFR data from 2000-2003 can be obtained)

Select retailers to provide monthly water use data from 2009 to 2011 by sector:
To assist district staff in understanding, analyzing and validating the water use data, the retailers should answer the following questions, along with

- Is the month containing the billing data the same as the month the water used month?
- Are meters read monthly (as opposed to bimonthly) for all water use sectors? If no, please explain.
- Are all multifamily units metered/billed as multifamily? Or, is some residential billing combined single/mf?
- If you meter/bill an industrial category, what is the definition of this category? What is the typical industrial user in your billing area?
- How are landscape billing sectors defined? Are all large landscape users metered accordingly?
- Is number of accounts (i.e users) for each sector available for 2000-2011, if not already provided?
- Are you aware of major water use types or changes that may be of significance or have resulted in known changes to water use patterns (change in large industry use, cooling/process water, etc.)?

4.2 Reservoir Inflow Analysis Data Needs

- Historic precipitation data (daily –or hourly if feasible)
  - Recommend data from at least two stations (nearest to reservoirs) be from the National Climate Data Center/NOAA records for validation
  - District owned rainfall station data at reservoirs being analyzed
- Local reservoir inflow measurements or calculations will need to be obtained. Weekly reservoir inflow calculations are recommended, but currently only monthly is available. The Operations and Planning and Analysis Unit would have to conduct the analysis to obtain weekly values.

4.3 Climate Data Requirements and Sources

For the best analysis of climate related trends, the longest history possible would be best, and greater than 100 years would be ideal. However, most readily available daily climate data sets are only comprehensive from 1950's to 2000's in Santa Clara County. The following minimum parameter requirements are:

- Daily temperature (daily minimum and maximum and average)
- Daily precipitation (hourly if available for reservoir inflow analysis)
- Extremes and Deviation from Norm (if available)
- Minimum of four stations

Monitoring stations to be evaluated should include those with the longest historic record (majority are post 1940s) and contain daily records of temperature and precipitation. The following appear to be good candidates for data gathering. However, the availability and completeness of data available should be validated depending on which data source is used

Station Name	Period of Record (as indicated by NCDC)	COOP ID	WBAN ID
Gilroy	1948 to Present	0433419	-
Los Gatos	1931 to Present	045123	-
Moffett Fed Airfield	1933 to Present	-	23244
Morgan Hill	1948 to Present	045853	
Mt. Hamilton	1929 to Present	045933	23261
Palo Alto	1953 to Present	046646	-
San Jose	1905 to Present	047821	23293

Costs: (expected to be a onetime purchase, future data additions should be at no or minimal purchasing costs)

- Daily precipitation history. $70/station for $280 minimum.
- Selected Meteorological Element(s): EXTREMES, Monthly, Daily/ per station: $40, $160 max
- Long History Monthly history of precip, min and max temp and deviation $200/station. $800 max

Formatted File Downloads, Summaries and Analysis Files for Purchase

Daily – Select locations, then select data retrieval.

http://gis.ncdc.noaa.gov/map/daily/?extent=-13627403.583786208:4422906.321336156:-13475293.897498649:4506834.178393312&srid=102100&msg=no

Free Historic Daily Data Download Option (not recommended due to data download format)

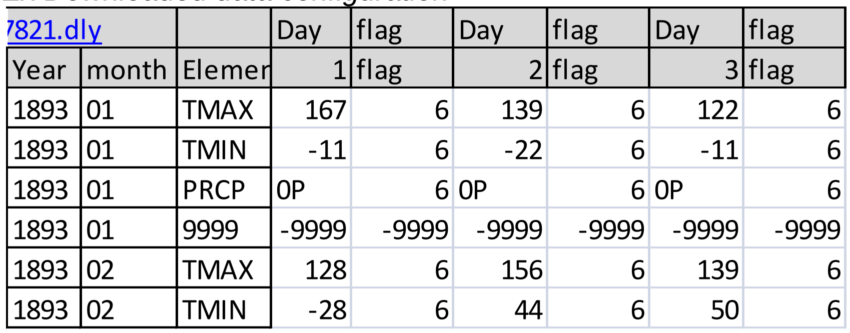
Significant restructuring of data is needed for the free daily download. Below are examples of some of the restructuring needed.

1. The Row ID contains the YYYY MM and Element being measures and needs to be destringed into separate cells as shown in the last 3 columns of this example adjusted data set.

downloaded id 047821	site id with YYYY MM	YYYY MM	Year	month	Elemen
USC00047821189301TMAX	USC00047821189301	189301	1893	01	TMAX
USC00047821189301TMIN	USC00047821189301	189301	1893	01	TMIN
USC00047821189301PRCP	USC00047821189301	189301	1893	01	PRCP

2. Data in the free download is arranged in Row in YYYY MM, and Columns by Date (as shown in the download example below). For best analysis, it is suggested that the data be re-organized by the full date YYYY MM DD, then Element so that all data is arranged in order by date, not by year and month. This will also make it easier for future conversion to a relational database.

Ex Downloaded data configuration



7821.dly			Day	flag	Day	flag	Day	flag
Year	month	Elemer	1	flag	2	flag	3	flag
1893	01	TMAX	167	6	139	6	122	6
1893	01	TMIN	-11	6	-22	6	-11	6
1893	01	PRCP	0P	6	0P	6	0P	6
1893	01	9999	-9999	-9999	-9999	-9999	-9999	-9999
1893	02	TMAX	128	6	156	6	139	6
1893	02	TMIN	-28	6	44	6	50	6

Example configuration

COOP Station	Date	Element	Value	Data flag
0542104	01/01/1907	TMAX	167	6
0542104	01/01/1907	TMIN	-11	6
0542104	01/01/1907	PRECIP	0.10	-

To access this data:
http://www.ncdc.noaa.gov/oa/climate/ghcn-daily/
Data files via ftp folders @:
ftp://ftp.ncdc.noaa.gov/pub/data/ghcn/daily/all (this URL may not always load the directory of all stations. If not, you can type the station number into this URL (see yellow highlight) to pull up the station needed:
http://www1.ncdc.noaa.gov/pub/data/ghcn/daily/all/USC00045123.dly

4.4 Computer Applications, Software or ModelingTools

It is anticipated that much of the preliminary analyses will be conducted in Excel and that other readily available statistical tools would aid in the analysis. If an extensive database is developed as part of this study and includes available data from district owned rainfall stations, it is recommend to store this data in an Oracle database or similar database environment that is compatible with the District's GIS capabilities and platforms.

The study referenced in Section 3.2 utilized Extreme Value Analysis as the statistical method. Therefore, if the District determines that this analysis is appropriate, a range of statistical software purchasing options is presented.

1 Reference Material: An Introduction to Statistical Modeling of Extreme Values [Hardcover] Stuart Coles (Author) $93.93

2 Software specific to Extreme Value Analysis:
  - Statistics Toolbox 7.6 Commercial Use Individual License For: End user Activation types: Standalone named user or designated computer. $1,000
  - EasyFit (the stand-alone application) Single User License $499
  - The Extremes Toolkit; Weather and Climate Applications for Extreme Value Analysis (EVA) - $ Free

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